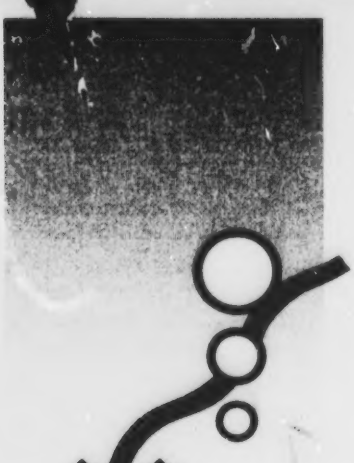

National Pollutant Release Inventory

About the NPRI 1999

Canadian Environmental Protection Act

Environment Canada Environnement Canada

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What is the National Pollutant Release Inventory?

The National Pollutant Release Inventory (NPRI) was created in 1992 to provide Canadians with information on pollutants released to the environment and transferred for disposal. Since then, its role has expanded to collect data on recycling and pollution-prevention activities. The program is delivered by Environment Canada.

Under the authority of the *Canadian Environmental Protection Act (CEPA)*, owners or operators of facilities that manufacture, process or otherwise use one or more of the NPRI-listed substances under prescribed conditions are required to report. The first year for which companies were required to report to the NPRI was 1993.

CEPA (1988) was in force when the notices of NPRI reporting requirements for 1998-2000 were published in the *Canada Gazette*, Part I. *CEPA* (1999) came into force in April 2000, and is the authority for 2001 and beyond.

The NPRI is the only legislated, nation-wide, publicly-accessible inventory of its type in Canada. One of the fundamental objectives of the NPRI is to provide Canadians with access to pollutant release information for facilities located in their communities. In addition, the NPRI supports a number of environmental initiatives by providing information that assists governments and others in identifying priorities for action, encourages industry to take voluntary measures to reduce releases, allows for tracking of progress in the reduction of releases, and supports a number of regulatory initiatives across Canada.

Who Reports to the NPRI?

In general, any person in Canada who owns or operates a facility is required to submit a report to the NPRI if they meet all three of the following criteria:

- employees worked a total of 20 000 hours or more (equivalent to 10 full-time employees) during the calendar year, and
- the facility manufactured, processed or otherwise used 10 tonnes (10 000 kg) or more of an NPRI substance in the calendar year, and
- the NPRI substance was manufactured, processed or otherwise used at a concentration greater than or equal to 1% by weight, with the exception of NPRI substances considered to be by-products. An NPRI substance at less than 1% concentration is considered to be a by-product and must be included in the calculation of the 10-tonne threshold only if it was incidentally manufactured, processed or otherwise used, and it was released on site to the environment or transferred off site for disposal.

All facilities from all economic sectors that meet the reporting criteria are required to report, unless specifically exempt under the notice published in the *Canada Gazette*, Part I. Therefore, reporting may be triggered in commercial and government services sectors such as electrical power generation utilities, airports and municipal water- and sewage-treatment plants. Exempt facilities include those (or any part thereof) used exclusively for one of the following activities:

- education and training of students (universities, colleges and schools)
- research or testing
- the maintenance and repair of transportation vehicles
- the distribution, storage or retail sale of fuels
- the wholesale or retail sale of articles or products which contain listed substances, but which were not released during normal use at the facility
- the retail sale of listed substances
- growing, harvesting and management of renewable resources (forestry, fisheries and agriculture), but not those facilities which process or otherwise use their products
- mining, but not those facilities engaged in the further processing of mined materials, or
- the drilling or operating of oil and gas wells, but not those facilities which process or otherwise use their products.

The number of facilities reporting to the NPRI can be expected to fluctuate from year to year because of:

- new facilities opening or existing facilities shutting down (either temporarily or permanently)
- facilities on the verge of meeting the 10-tonne reporting threshold which may trigger reporting in some years, but not others
- facilities that have expanded their operations and, as a result, are meeting the reporting requirements for the first time
- facilities that were previously required to report but have only recently come forward to declare themselves as reporters, or that have been identified as being required to report through Environment Canada's compliance promotion and enforcement efforts, and
- facilities that are reducing or eliminating the use of substances listed on the NPRI.

What is Reported to the NPRI?

All facilities in Canada meeting the NPRI reporting criteria are legally required to submit a report to Environment Canada if they manufacture, process or otherwise use one or more of the NPRI-listed substances under prescribed conditions. A facility must submit one report for each pollutant that meets the NPRI reporting requirements. The deadline for reporting and other requirements are published annually in the *Canada Gazette*, Part I.

Reporting facilities must indicate whether the NPRI substance is manufactured, processed or otherwise used, and the nature of such activities and uses at the facility during the calendar year. They must report on-site releases and off-site transfers of pollutants, as well as facility and company information.

Facilities are required to provide information to which they can reasonably be expected to have access. In some instances, information is readily available from existing monitoring for provincial permits or licences. In other cases, a variety of estimation methodologies are used, depending on the information available and the type of industry. The lowest reportable unit is 0.001 tonne or one kilogram. In declining order of expected accuracy, estimates can be based on direct measurements, mass balances, emission factors or engineering estimates. It is expected that improvements in estimation methods, increased familiarity of facilities with the NPRI reporting requirements, and Environment Canada's compliance promotion and enforcement activities will continue to increase data accuracy.

NPRI List of Substances

The NPRI substance list, developed through public consultation, was derived from the 1990 United States Toxics Release Inventory, after deleting substances or classes of substances that were either not used in Canada at all, or were used in quantities smaller than one tonne per year. There were 178 substances on the first NPRI list in 1993.

Environment Canada has made minor adjustments to the list since the program's inception. For example, in 1995, "ammonium nitrate" and "ammonium sulphate" were deleted and replaced with "ammonia (total)" and "nitrate ion (in solution at a pH of 6.0 or greater)" to better capture releases of ammonia and nitrates. The reporting criteria were also changed to include NPRI by-products in the calculation of the 10-tonne reporting threshold. The reason for this change was to identify large-volume, low-concentration releases and transfers which normally would not trigger the reporting requirements of the NPRI. An NPRI substance is considered to be a by-product and must be included in the calculation of the 10-tonne threshold only if it was incidentally manufactured, processed or otherwise used at less than 1% concentration, and it was released on site to the environment or transferred off site for disposal. Major changes to the NPRI substance list are only made after consultation with Canadian stakeholders.

For the 1999 reporting year, three changes were made to the list of substances:

- Seventy-three substances were added to the NPRI. This addition was made following public consultation and recommendations from the Multistakeholder Ad Hoc Work Group on Substances. The list of the 245 reportable substances was published in the *Canada Gazette*, Part I, and can be found in the Appendix to this publication.

- "Acetone" was removed for the 1999 and subsequent reporting years, following an independent assessment of information (commissioned by Environment Canada) and consultation with stakeholders.
- The individual xylene isomers (*m*-xylene, *o*-xylene and *p*-xylene) are no longer on the list. They now are reported together under "xylene (mixed isomers)".

Each chemical substance is identified by a Chemical Abstract Service (CAS) registry number – a unique number assigned by the American Chemical Society. A chemical may be known by several different names, but it has only one CAS number. Some of the reportable NPRI substances represent groups or classes of substances such as "copper (and its compounds)". For these groups, no specific CAS number exists.

CEPA-toxic and Carcinogenic Pollutants

Some substances on the NPRI list may be of particular interest because they have been determined to be "*CEPA*-toxic", "carcinogenic" or "probably carcinogenic".

Under *CEPA*, a substance is defined as "toxic" if it is entering or may enter the environment in a quantity or concentration or under conditions that:

(a) have or may have an immediate or long-term harmful effect on the environment or its biological diversity

(b) constitute or may constitute a danger to the environment on which human life depends, or

(c) constitute or may constitute a danger in Canada to human life or health.

In determining whether a substance should be declared "toxic", the likelihood and magnitude of releases to the environment, as well as the harm it may cause to human health or ecosystems in Canada, are taken into account. If a substance is found to be toxic, it is added to the List of Toxic Substances (*CEPA* Schedule 1). Environment Canada and Health Canada work with stakeholders and other interested parties to develop management plans to reduce or eliminate the harmful effects these toxic substances could have on the environment and health of Canadians.

The classification of carcinogens used by the NPRI program is that of the International Agency for Research on Cancer (IARC). In 1969, the IARC initiated a program to evaluate the carcinogenic risk of chemicals to humans and to produce monographs on individual chemicals. The Monographs Program has since been expanded to include consideration of exposures to complex mixtures of chemicals and to other agents, such as radiation and viruses. The monographs represent the first step in carcinogenic risk assessment, which involves examination of all relevant information to assess the strength of the available evidence that certain exposures could alter the incidence of cancer in humans. The second step is the quantitative risk estimation method.

The term "carcinogen" is used in these IARC monographs to denote an exposure that is capable of increasing the incidence of malignant neoplasm or tumour; the induction of benign neoplasm may, in some circumstances, contribute to the judgment that the exposure is carcinogenic. The IARC monographs are recognized as an authoritative source of information on the carcinogenicity of a wide range of human exposures.

IARC-1 grouped substances have been defined as agents (mixtures) which are carcinogenic to humans. The term "agent" is defined by the IARC to include individual chemical compounds, groups of related chemical compounds, physical agents (such as radiation) and biological factors (such as viruses). IARC-2A grouped substances are defined as probably carcinogenic to humans. This category is used when there is limited evidence of carcinogenicity in humans, but sufficient evidence of carcinogenicity in experimental animals.* The NPRI-listed carcinogenic substances include only those designated by IARC as 1 or 2A.

Industrial Classification Codes and Industrial Sectors

Industrial classifications are a means of identifying different types of businesses and industries. The NPRI has adopted the North American Industry Classification System (NAICS) as the standard for identifying industrial sectors to enable better comparisons of NPRI data with similar inventories in the U.S. and Mexico. The NPRI continues to collect Canadian and American Standard Industrial Classification (SIC) data to retain continuity with its historical data.

The NPRI requires facilities to report the SIC and NAICS codes that best represent the primary industrial activity of the facility. This allows the NPRI to identify trends in releases from specific industrial sectors.

On-site Releases

An on-site release is an on-site discharge of a pollutant to the environment. This includes emissions to air, discharges to surface waters, on-site releases to land and deep-well underground injection, within the boundaries of the facility.

On-site releases are further subdivided as releases to:

- Air
  - stack/point
  - storage/handling
  - fugitive
  - spills
  - other non-point
- Surface water
  - discharges
  - spills
  - leaks
- Land
  - landfill
  - land treatment
  - spills
  - leaks
  - other
- Underground injection.

* Information regarding the International Agency for Research on Cancer (IARC) was obtained from the IARC Web site at <www.iarc.fr/>. This site provides information on the IARC's mission and publications (including the *IARC Monographs Evaluations* and IARC epidemiology data).

Fugitive releases are the total of all releases to air that are not released through confined process streams, such as fugitive equipment leaks from valves.

Landfills are sites in which wastes containing NPRI pollutants are buried. Most landfills found in Canada are provincially-approved waste-disposal sites. Some landfills are classified as hazardous-waste-approved, but more typically, they are disposal sites for non-hazardous waste only. Regardless of classification, all landfills are required to have appropriate permits and be specifically designed under strict guidelines for use as a final disposal site for waste. For the purposes of the NPRI, on-site landfilling is reported as an on-site release. If an NPRI substance is transferred to an off-site landfill, it is reported as an off-site transfer for disposal.

The materials released to landfill are wastes from production or are generated as a result of pollution-control measures. These materials are put in a landfill to minimize the risk to health and the environment. While landfilling is an accepted waste-management practice, a preferred option is recycling. The best approach is to prevent the generation of wastes or pollutants using pollution-prevention techniques.

Land treatment, also called application farming, is a disposal method by which a waste containing a listed pollutant is applied or incorporated into soil for biological degradation. This type of disposal method is usually approved under provincial jurisdiction. For the purposes of the NPRI, on-site land treatment is reported as an on-site release. If an NPRI substance is transferred off site for land treatment, it is reported as an off-site transfer for disposal.

A leak differs from a spill in terms of the time required for an event. Spills normally occur over a period of hours or days, whereas leaks occur over a period of days or months.

Underground injection is another method of waste disposal. Subject to provincial regulation, liquid wastes are injected into known geological formations, generally at great depths.

Off-site Transfers

An off-site transfer is a shipment of an NPRI-listed substance to an off-site location for disposal or for recycling. Facilities must provide the name and location of the off-site facility receiving the shipment.

Off-site Transfers for Disposal

"Disposal" is final disposal of the material (e.g., landfill) or storage and treatment (e.g., stabilization) prior to final disposal.

Information on off-site transfers for disposal includes treatment and disposal methods. Off-site treatments do not necessarily constitute an environmental release because the pollutant may be altered chemically or physically, and may not be ultimately released in its original form. Therefore, disposal methods represent environmental releases with different environmental impacts, depending on the site and the pollutant.

Eight major off-site disposal methods are identified:

- physical treatment, such as drying, evaporation, encapsulation or vitrification
- chemical treatment, such as precipitation, stabilization and neutralization
- biological treatment, such as bio-oxidation
- incineration or thermal treatment where energy is not recovered
- containment, either in a landfill or other storage
- municipal sewage treatment plant (MSTP)
- underground injection at an off-site location, and
- land treatment, for the purpose of land application or land farming.

Off-site transfers for disposal are reported separately from on-site releases because:

- off-site transfers represent a movement of the pollutant to a different geographical location than that of the facility
- off-site transfers do not always represent entry of the pollutant into the environment, e.g., when off-site transfers are sent for treatment and the pollutants are transformed into other chemicals
- management of the pollutant may become the responsibility of another owner or operator
- reporting of off-site transfers provides complete information on the fate of the pollutant, and
- wastes may be transferred a number of times, which may lead to double-counting of those materials.

The NPRI is improving the way in which facilities identify the off-site facilities to which they transfer their wastes. This should allow the NPRI to better identify instances of double-counting of transfers in the future.

Off-site Transfers for Recycling

"Recycling" refers to activities that keep a material or a component of the material from becoming a waste destined for final disposal.

As a result of public consultations in 1996, the reporting of recycling activities to the NPRI became mandatory, beginning in the 1998 reporting year.

Generally, materials transferred off site for recycling include those sold to recyclers, such as metal shavings or turnings, material sent off site for processing, cleaning or reclamation and returned to the facility, and those materials sent back to suppliers for credit or payment. The recyclable material may be used in the manufacture of another product. Components may be recovered or reclaimed from the recyclable material or the material may be used as a fuel for energy recovery. Energy recovery is applicable only when the energy recovered from combustion is used as an alternative to fossil fuels or other forms of energy.

Substances and materials transferred off site for recycling activities are not normally released to an environmental medium. Once transferred off site to another facility, the handling and further processing of those substances may result in releases, which may be reportable by that off-site facility if it meets the NPRI reporting criteria.

Ten types of recycling operations are identified, based on those set out in the *Canadian Export and Import of Hazardous Wastes Regulations* and the International Waste Identification Code developed by the Organization for Economic Cooperation and Development. These activities include:

- energy recovery
- recovery of solvents
- recovery of organic substances (not solvents)
- recovery of metals and metal compounds
- recovery of inorganic materials (not metals)
- recovery of acids or bases
- recovery of catalysts
- recovery of pollution-abatement residues
- refining or reuse of used oil, and
- other recovery, reuse and recycling activities.

With the exception of energy recovery, the recycling activities are related to the nature of the substance being recycled (solvents, organic substances, metals, acids or bases, etc.). However, the energy recovery activity is distinct because it is based on the energy content (BTU value) of the NPRI substance and its ability to be used as a fuel for energy recovery. The NPRI publishes recycling data under two categories – off-site transfers for recycling (excluding energy recovery) and off-site transfers for energy recovery.

Pollution-Prevention Activities

Reporting of pollution-prevention (P2) activities became a mandatory requirement beginning in the 1997 reporting year. It was introduced to help the federal government and others track progress in pollution prevention and to provide companies undertaking P2 activities with an additional means of demonstrating these activities to the public.

Pollution prevention is an environmental protection approach that seeks to eliminate the causes of pollution rather than managing it after it has been created. Pollution prevention is defined as:

> "the use of processes, practices, materials, products or energy that avoid or minimize the creation of pollutants and waste, and reduce the overall risk to human health or the environment". (*Pollution Prevention: A Federal Strategy for Action*, Environment Canada, June 1995)

Pollution prevention encourages the kinds of changes that are likely to lead to lower production costs, resource conservation and increased efficiencies.

Generally speaking, pollution-prevention techniques and practices focus on areas such as:

- materials or feedstock substitution (e.g., using aqueous-based rather than solvent-based cleaners)
- product design or reformulation (e.g., changing product specifications to reduce or eliminate the use of toxic substances, modifying product design or composition to make them more environmentally friendly)
- equipment or process modifications (e.g., instituting recycling within a process, switching from the use of solvents to mechanical paint-stripping devices)

- spill and leak prevention (e.g., taking measures to prevent releases such as installing splash guards and drip trays around equipment)
- on-site reuse, recycling or recovery (e.g., using a small distillation unit to reclaim solvents on site)
- improved inventory management or purchasing techniques (e.g., avoiding the unnecessary generation of waste by ensuring that materials do not stay in inventory beyond shelf life, instituting a clearinghouse to exchange materials that would otherwise be discarded), and
- good operating practices or training (e.g., changing production schedules to minimize equipment and feedstock changeovers, training staff to recognize and implement P2 opportunities).

Other environmental protection approaches focus on waste management. These include pollution-control and waste-treatment activities as well as off-site recycling and disposal activities. These approaches also reduce environmental and health risks by ensuring that pollution or waste that is not prevented is well managed.

Reporting Pollution-Prevention Activities to the NPRI

Facilities that have taken measures to prevent the generation of NPRI pollutants and wastes are asked to indicate, from the list of pollution-prevention techniques and practices provided, what type of P2 activities they have implemented, on a substance-by-substance basis. They are asked to provide qualitative data only, but are encouraged to provide further details on the nature of their P2 activities if they so desire (including environmental and economic benefits).

Facilities are required to report on their P2 activities for NPRI-listed substances only. However, they are also encouraged to provide information on other P2 initiatives (e.g., P2 activities for non-NPRI substances, water and energy conservation initiatives, etc.).

Qualitative reporting provides limited basic information on P2 activity. Qualitative data, such as the information provided by facilities reporting to the NPRI, indicate if P2 activity has occurred in reporting facilities, but do not indicate either the extent of these activities (frequency, comprehensiveness) or their effect on the generation of pollutants and waste.

How to Obtain NPRI Information

There are many ways to obtain information on releases and transfers of NPRI pollutants nationally, provincially and at the local community level.

Since 1994, Environment Canada has published an annual national report of NPRI data submitted by Canadian facilities. The reports include information on the NPRI-listed substances and their releases on site to the environment and off-site transfers for disposal or recycling. Information is presented on a national basis, summarizing releases by environmental medium, by pollutant and by industrial sector, with comparisons to the previous year's data.

Other 1999 reports and analyses will be developed and made available to the public throughout 2001 on the NPRI Web site at <www.ec.gc.ca/pdb/npri>.

All non-confidential NPRI information and data are also accessible on the NPRI Web site. The Web site includes background information on the NPRI, provides news on upcoming events, highlights stakeholder consultation activities and provides links to similar Web sites in North America and around the globe. It provides access to current and previous NPRI reporting requirements, guidance documents and downloadable data products. Electronic versions of previously-published annual summary reports, and databases, are also available.

In addition, the NPRI Web site allows the user to query the NPRI database on specific facilities in each of the reporting years. This interactive querying feature allows the user to select a specific facility reporting to the NPRI, geographic area or release for any NPRI-listed pollutant. Searches can also be performed by industrial sectors, based on SIC codes.

Factors to Consider when Using NPRI Data

NPRI data provide a publicly-available annual record of releases and transfers of listed pollutants from facilities operating in Canada. However, NPRI data represent only a portion of all chemical releases and transfers to the Canadian environment.

Other substances, such as greenhouse gases (e.g., carbon dioxide and methane), ozone-depleting substances, many pesticides and other pollutants are not part of the current list of NPRI substances and may be reported to other inventories or managed under other programs.

While the NPRI program currently collects pollutant release and transfer data from a broad range of industrial and non-industrial sectors, not all sources are captured by the NPRI. For example, industrial and stationary fuel combustion sources and mobile sources (e.g., automobiles and trucks), are known to be major contributors of hazardous air pollutants (e.g., benzene and 1,3-butadiene, both of which are considered *CEPA*-toxic). Long-range transboundary air pollution (LRTAP) from other countries may be a contributor of persistent organic pollutants (POPs) and heavy metals (HM) such as cadmium and mercury.

Facilities that do not meet the reporting thresholds because of their size (either the number of employees or the quantity of substances used), such as dry cleaners, or because they are exempt, such as gas stations, do not report to the NPRI. Collectively, however, releases from these sources may account for the majority of releases of some pollutants.

Releases of a particular pollutant by a facility reporting to the NPRI should be considered in the overall context of these other pollutants, other sources and smaller-sized facilities.

Several factors must be considered before drawing conclusions on the environmental performance of specific facilities or industrial sectors. In examining the amount of total releases of any one sector or changes in releases by a facility from previous years, consideration should be given to the fact that, in 1999, there were 245 reportable substances (of which 73 were reported for the first time) compared to 176 in 1998. It is, therefore, important to consider more than the magnitude of releases. The amounts released relative to the size of the facility or sector should be considered, as well as the complexity of the process and the best-available technologies. It would be incorrect to assume that facilities or industrial sectors with the largest releases or transfers are less inclined than others toward pollution prevention and control.

Many pulp and paper facilities reported releases from more sources in 1999 than in the past and, as a consequence, higher releases of NPRI substances. This does not necessarily mean that releases by the pulp and paper industry have actually increased. Rather, it indicates better reporting in terms of the number of substances and greater accuracy in calculating releases. One reason for better reporting was the result of the Canadian Pulp and Paper Association (CPPA) requesting that the National Council for Air and Stream Improvement (NCASI) develop a technical handbook to assist CPPA members and others in meeting NPRI reporting obligations. The NCASI handbook provides a comprehensive list of emission sources for each substance and appropriate emission factors. Another reason was that the CPPA committed time and effort to improving the accuracy of reported data from its member companies.

Risk to human health and the environment from on-site releases of pollutants cannot be determined from NPRI data alone. Although the data are useful as a starting point in identifying potential risks, other information is required before such assessments can be made.

Risk depends on many factors, such as the toxicity of the pollutant, the extent of the exposure, the type of release or transfer and the environmental medium receiving the pollutant. The amount of releases of some pollutants may not necessarily be commensurate with their environmental or health impacts. Conversely, smaller releases of specific pollutants may have significant impacts.

Additional information can be obtained from sources listed on the following page.

Confidential Information

Any person who provides information to the Minister of the Environment, under the provisions of Part II of *CEPA*, may submit a written request that the information be treated as confidential. The request for confidentiality must accompany the NPRI report submitted to Environment Canada, and must meet criteria set out in the *Access to Information Act*. A request for confidentiality will be denied if the data are already in the public domain.

The NPRI does not include confidential data in any public documents. It does, however, report in its annual summary the number of facilities granted confidential status and their overall contribution to releases and transfers.

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For More Information

Additional References

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Tel.: (613) 957-3143
Fax: (613) 941-8632
Web site: www.hc-sc.gc.ca/ehd/catalogue/index.htm

Canadian Centre for Occupational Health and Safety
Chemical Evaluation Search and Retrieval System (CESARS)
250 Main Street East
Hamilton, ON
L8N 1H6

Tel.: (905) 570-8094
Fax: (905) 572-2206
Web site: www.ccohs.ca/products/databases/cesars.html

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Web site: www.atsdr.cdc.gov/

National Library of Medicine (TOXNET)
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Fax: (301) 480-3537
Web site: www.nlm.nih.gov/hinfo.html

Appendix — Alphabetical Listing of the 1999 NPRI Substances

NOTE: The substances added to the NPRI for the 1999 reporting year, are in bold lettering.

NAME	CAS No.[1]
Acetaldehyde	75-07-0
Acetonitrile	75-05-8
Acetophenone	**98-86-2**
Acrylamide	79-06-1
Acrylic acid [2]	79-10-7
Acrylonitrile	107-13-1
Alkanes, C_{6-18}, chloro	**68920-70-7**
Alkanes, C_{10-13}, chloro	**85535-84-8**
Allyl alcohol	107-18-6
Allyl chloride	107-05-1
Aluminum [3]	7429-90-5
Aluminum oxide [4]	1344-28-1
Ammonia (total) [5]	*
Aniline [2]	62-53-3
Anthracene	120-12-7
Antimony [6]	*
Arsenic [6]	*
Asbestos [7]	1332-21-4
Benzene	71-43-2
Benzoyl chloride	98-88-4
Benzoyl peroxide	94-36-0
Benzyl chloride	100-44-7
Biphenyl	92-52-4
Bis(2-ethylhexyl) adipate	103-23-1
Bis(2-ethylhexyl) phthalate	117-81-7
Boron trifluoride	**7637-07-2**
Bromine	**7726-95-6**
1-Bromo-2-chloroethane	**107-04-0**
Bromomethane	74-83-9
1,3-Butadiene	106-99-0
2-Butoxyethanol	**111-76-2**
Butyl acrylate	141-32-2
i-Butyl alcohol	78-83-1
n-Butyl alcohol	71-36-3
sec-Butyl alcohol	78-92-2
tert-Butyl alcohol	75-65-0
Butyl benzyl phthalate	85-68-7
1,2-Butylene oxide	106-88-7
Butyraldehyde	123-72-8
C.I. Acid Green 3	4680-78-8
C.I. Basic Green 4	569-64-2
C.I. Basic Red 1	989-38-8
C.I. Direct Blue 218	**28407-37-6**
C.I. Disperse Yellow 3	2832-40-8
C.I. Food Red 15	81-88-9
C.I. Solvent Orange 7	3118-97-6
C.I. Solvent Yellow 14	842-07-9
Cadmium [6]	*
Calcium cyanamide	156-62-7
Calcium fluoride	**7789-75-5**
Carbon disulphide	75-15-0
Carbon tetrachloride	56-23-5
Catechol	120-80-9
CFC-11	**75-69-4**
CFC-12	**75-71-8**
CFC-13	**75-72-9**
CFC-114	**76-14-2**
CFC-115	**76-15-3**
Chlorendic acid	**115-28-6**
Chlorine	7782-50-5
Chlorine dioxide	10049-04-4
Chloroacetic acid [2]	79-11-8
Chlorobenzene	108-90-7
Chloroethane	75-00-3
Chloroform	67-66-3
Chloromethane	74-87-3
3-Chloro-2-methyl-1-propene	**563-47-3**
3-Chloropropionitrile	**542-76-7**
Chromium [6]	*
Cobalt [6]	*
Copper [6]	*
Cresol [2,8]	1319-77-3
m-Cresol [2]	108-39-4
o-Cresol [2]	95-48-7
p-Cresol [2]	106-44-5
Crotonaldehyde	**4170-30-3**
Cumene	98-82-8
Cumene hydroperoxide	80-15-9
Cyanides [9]	*
Cyclohexane	110-82-7
Cyclohexanol	**108-93-0**
Decabromodiphenyl oxide	1163-19-5
2,4-Diaminotoluene [2]	95-80-7
2,6-Di-*t*-butyl-4-methylphenol	**128-37-0**
Dibutyl phthalate	84-74-2
o-Dichlorobenzene	95-50-1
p-Dichlorobenzene	106-46-7
3,3'-Dichlorobenzidine dihydrochloride	**612-83-9**
1,2-Dichloroethane	107-06-2
Dichloromethane	75-09-2
2,4-Dichlorophenol [2]	120-83-2
1,2-Dichloropropane	78-87-5
Dicyclopentadiene	**77-73-6**
Diethanolamine [2]	111-42-2
Diethyl phthalate	84-66-2
Diethyl sulphate	64-67-5
Dimethylamine	**124-40-3**
N,N-Dimethylaniline [2]	121-69-7
Dimethyl phenol	**1300-71-6**
Dimethyl phthalate	131-11-3
Dimethyl sulphate	77-78-1
4,6-Dinitro-*o*-cresol [2]	534-52-1
2,4-Dinitrotoluene	121-14-2
2,6-Dinitrotoluene	606-20-2
Dinitrotoluene [8]	25321-14-6

NAME	CAS No.[1]
Di-*n*-octyl phthalate	117-84-0
1,4-Dioxane	123-91-1
Diphenylamine	**122-39-4**
Epichlorohydrin	106-89-8
2-Ethoxyethanol	110-80-5
2-Ethoxyethyl acetate	111-15-9
Ethoxynonyl benzene	**28679-13-2**
Ethyl acrylate	140-88-5
Ethylbenzene	100-41-4
Ethyl chloroformate	541-41-3
Ethylene	74-85-1
Ethylene glycol	107-21-1
Ethylene oxide	75-21-8
Ethylene thiourea	96-45-7
Fluorine	**7782-41-4**
Formaldehyde	50-00-0
Formic acid	**64-18-6**
Halon 1211	**353-59-3**
Halon 1301	**75-63-8**
HCFC-22	**75-45-6**
HCFC-122 and all isomers [10]	**41834-16-6**
HCFC-123 and all isomers [11]	**34077-87-7**
HCFC 124 and all isomers [12]	**63938-10-3**
HCFC-141b	**1717-00-6**
HCFC-142b	**75-68-3**
Hexachlorocyclopentadiene	77-47-4
Hexachloroethane	67-72-1
Hexachlorophene	**70-30-4**
***n*-Hexane**	**110-54-3**
Hydrazine [2]	302-01-2
Hydrochloric acid	7647-01-0
Hydrogen cyanide	74-90-8
Hydrogen fluoride	7664-39-3
Hydrogen sulphide	**7783-06-4**
Hydroquinone [2]	123-31-9
Iron pentacarbonyl	**13463-40-6**
Isobutyraldehyde	78-84-2
Isophorone diisocyanate	**4098-71-9**
Isoprene	**78-79-5**
Isopropyl alcohol	67-63-0
p,p'-Isopropylidenediphenol	80-05-7
Isosafrole	120-58-1
Lead [6]	*
Lithium carbonate	**554-13-2**
Maleic anhydride	108-31-6
Manganese [6]	*
2-Mercaptobenzothiazole	**149-30-4**
Mercury [6]	*
Methanol	67-56-1
2-Methoxyethanol	109-86-4
2-Methoxyethyl acetate	110-49-6
Methyl acrylate	96-33-3
Methyl *tert*-butyl ether	1634-04-4
p,p'-Methylene*bis*(2-chloroaniline)	101-14-4

NAME	CAS No.[1]
1,1-Methylene*bis* (4-isocyanatocyclohexane)	**5124-30-1**
Methylene*bis*(phenylisocyanate)	101-68-8
p,p'-Methylenedianiline	101-77-9
Methyl ethyl ketone	78-93-3
Methyl iodide	74-88-4
Methyl isobutyl ketone	108-10-1
Methyl methacrylate	80-62-6
N-Methylolacrylamide	**924-42-5**
2-Methylpyridine	**109-06-8**
N-Methyl-2-pyrrolidone	**872-50-4**
Michler's ketone [2]	90-94-8
Molybdenum trioxide	1313-27-5
Naphthalene	91-20-3
Nickel [6]	*
Nitrate ion [13]	*
Nitric acid	7697-37-2
Nitrilotriacetic acid [2]	139-13-9
***p*-Nitroaniline**	**100-01-6**
Nitrobenzene	98-95-3
Nitroglycerin	55-63-0
p-Nitrophenol [2]	100-02-7
2-Nitropropane	79-46-9
N-Nitrosodiphenylamine	86-30-6
Nonylphenol	**104-40-5**
Nonylphenol hepta (oxyethylene) ethanol	**27177-05-5**
Nonylphenol, industrial	**84852-15-3**
Nonylphenol nona (oxyethylene) ethanol	**27177-08-8**
***n*-Nonylphenol** [8]	**25154-52-3**
Nonylphenol polyethylene glycol ether	**9016-45-9**
***p*-Nonylphenol polyethylene glycol ether**	**26027-38-3**
Nonylphenoxy ethanol	**27986-36-3**
2-(*p*-Nonylphenoxy) ethanol	**104-35-8**
2-(2-(*p*-Nonylphenoxy) ethoxy) ethanol	**20427-84-3**
2-(2-(2-(2-(*p*-Nonylphenoxy) ethoxy)ethoxy)ethoxy) ethanol	**7311-27-5**
Paraldehyde	**123-63-7**
Pentachloroethane	**76-01-7**
Peracetic acid [2]	79-21-0
Phenol [2]	108-95-2
p-Phenylenediamine [2]	106-50-3
o-Phenylphenol [2]	90-43-7
Phosgene	75-44-5
Phosphoric acid	7664-38-2
Phosphorus [14]	7723-14-0
Phthalic anhydride	85-44-9
Potassium bromate	**7758-01-2**
Propargyl alcohol	**107-19-7**
Propionaldehyde	123-38-6

NAME	CAS No.[1]	NAME	CAS No.[1]
Propylene	115-07-1	Titanium tetrachloride	7550-45-0
Propylene oxide	75-56-9	Toluene	108-88-3
Pyridine [2]	110-86-1	Toluene-2,4-diisocyanate	584-84-9
Quinoline [2]	91-22-5	Toluene-2,6-diisocyanate	91-08-7
p-Quinone	106-51-4	Toluenediisocyanate [8]	26471-62-5
Safrole	94-59-7	1,2,4-Trichlorobenzene	120-82-1
Selenium [6]	*	1,1,2-Trichloroethane	79-00-5
Silver [6]	*	Trichloroethylene	79-01-6
Sodium fluoride	**7681-49-4**	**Triethylamine**	**121-44-8**
Sodium nitrite	**7632-00-0**	1,2,4-Trimethylbenzene	95-63-6
Styrene	100-42-5	**2,2,4-Trimethylhexamethylene diisocyanate**	**16938-22-0**
Styrene oxide	96-09-3		
Sulphur hexafluoride	**2551-62-4**	**2,4,4-Trimethylhexamethylene diisocyanate**	**15646-96-5**
Sulphuric acid	7664-93-9		
1,1,1,2-Tetrachloroethane	**630-20-6**	Vanadium [3]	7440-62-2
1,1,2,2-Tetrachloroethane	79-34-5	Vinyl acetate	108-05-4
Tetrachloroethylene	127-18-4	Vinyl chloride	75-01-4
Tetracycline hydrochloride	**64-75-5**	Vinylidene chloride	75-35-4
Tetraethyl lead	**78-00-2**	Xylene [8]	1330-20-7
Thiourea	62-56-6	Zinc [6]	*
Thorium dioxide	1314-20-1		

* No single CAS number applies to this NPRI listing.

1 CAS Registry Number denotes the Chemical Abstracts Service Registry Number, as appropriate.

2 "and its salts" – The CAS number corresponds to the weak acid or base. However, the NPRI listing includes the salts of these weak acids and bases. When calculating the weight of these substances and their salts, use the molecular weight of the acid or base, not the total weight of the salt.

3 "fume or dust"

4 "fibrous forms"

5 "Ammonia (total)" means the total of both of ammonia (NH_3 – CAS No. 7664-41-7) and the ammonium ion (NH_4^+) in solution.

6 "and its compounds"

7 "friable form"

8 "mixed isomers"

9 "ionic"

10 The isomers include, but are not necessarily limited to, HCFC-122 (CAS No. 354-21-2).

11 The isomers include, but are not necessarily limited to, HCFC-123 (CAS No. 306-83-2) and HCFC 123a (CAS No. 90454-18-5).

12 The isomers include, but are not necessarily limited to, HCFC 124 (CAS No. 2837-89-0), and HCFC 124a (CAS No. 354-25-6).

13 "in solution at a pH of 6.0 or greater"

14 "yellow or white"

Addenda

The 1999 NPRI National Overview is based on information that was received by Environment Canada prior to **February 5, 2001**. Some companies provided new or revised information to Environment Canada after this date. Information received between February 5 and May 4 has been incorporated in an updated version of the 1999 NPRI database, which is available electronically on the NPRI Internet website at **http://www.ec.gc.ca/pdb/npri/**. The following information provides additional context regarding the following sections in the 1999 NPRI National Overview:

1. Section 5.2 - Off-site Transfers for Disposal in 1999 - 25 NPRI Pollutants Transferred in the Largest Quantities

It was mistakenly stated that 1999 was the first year that **Philip Enterprises Inc., Philip Mill Services at Firestone (NPRI#5664)**, Hamilton, Ontario reported to the National Pollutant Release Inventory. In fact, this facility first reported to the NPRI in 1997, however, was assigned duplicate NPRI ID numbers. The correct NPRI ID number for Philip Mill Services at Firestone is **#5643**.

2. Appendix 2 - Arsenic (and its compounds) & Section 7.2.1 - On-site Releases of NPRI-listed, *CEPA*-toxic and Carcinogenic Pollutants - 25 Pollutants Releases in the Largest Quantities

Royal Oak Mines Inc., Division of Giant Mine (NPRI # 4221), Yellowknife, Northwest Territories the largest facility reporting releases in 1998, went in to receivership in 1999 and is mentioned in Section 7.2.1 as being closed. In fact, the facility is currently operated by Miramar Giant Mine Ltd (Miramar). Data for this facility was received after the preparation of the 1999 National Overview report where Miramar Giant Mine Ltd. reported on-site releases of **1 085.000 tonnes** of arsenic (and its compounds) for 1999. This revised number now ranks this facility as the number one releaser of this substance. Total release quantities for arsenic (and its compounds) should be increased accordingly.

3. Appendix 2 - Benzene

Cabot Canada Ltd (NPRI #5808), Sarnia, Ontario originally reported on site releases to air of **88.500 tonnes** of benzene. This value was reported in error and has since been revised to **0.300 tonnes**. This revised number changes the facility's ranking for this substance. Total release quantities for benzene should be reduced accordingly.

4. Appendix 2 - Carbon disulphide

Cabot Canada Ltd. (NPRI #5808), Sarnia, Ontario originally reported on-site releases to air of **1 731.700 tonnes** of carbon disulphide. This value was reported in error and has since been revised to **47.230 tonnes**. This revised number changes the facility's ranking for this substance. Total release quantities for carbon disulphide should be reduced accordingly.

5. Appendix 2 - Chlorine

Bowater Pulp and Paper Canada Inc - Thunder Bay Operations (NPRI #0930), Thunder Bay, Ontario originally reported on-site releases to air of **15.770 tonnes** of chlorine. This value was reported in error and has since been revised to **255.980 tonnes**. This revised number changes the facility's ranking for this substance. Total release quantities for chlorine should be increased accordingly.

6. Appendix 2 - Hydrogen cyanide

Cabot Canada Ltd. (NPRI #5808), Sarnia, Ontario originally reported on-site releases to air of **1 416.200 tonnes** of hydrogen cyanide. This value was reported in error and has since been revised to **12.840 tonnes**. This revised number changes the facility's ranking for this substance. Total release quantities for hydrogen cyanide should be reduced accordingly.

7. Appendix 2 - Mercury (and its compounds)

Regional Municipality of Ottawa-Carelton - Robert O. Pickard Environmental Centre (NPRI #0770), Gloucester, Ontario originally reported on-site releases to water of **1.740 tonnes** of mercury (and its compounds). This value was reported in error and has since been revised to **0 tonnes**. This revised number changes the facility's ranking for this substance. Total release quantities for mercury (and its compounds) should be reduced accordingly.

8. Appendix 2 - Methyl isobutyl ketone

General Motors of Canada Limited - Car Assembly Plant (NPRI #3893), Oshawa, Ontario originally reported on-site releases to air of **51.992 tonnes** of methyl isobutyl ketone. This value was reported in error and has since been revised to **57.171 tonnes**. This revised number does not change the facility's ranking but total release quantities for methyl isobutyl ketone should be increased accordingly.

9. Appendix 2 - Xylene (mixed isomers)

General Motors of Canada Limited - Car Assembly Plant (NPRI #3893), Oshawa, Ontario originally reported on-site releases to air of **519.769 tonnes** of xylene (mixed isomers). This quantity was reported in error and has since been revised to **521.449 tonnes**. This revised number does not change the facility's ranking but total release quantities for xylene (mixed isomers) should be increased accordingly.

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Canadian Environmental Protection Act, 1999

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Executive Summary

The 1999 National Overview is the seventh annual report published under Environment Canada's National Pollutant Release Inventory (NPRI) program. In 1999, 73 substances were added to the NPRI, and acetone was removed. This report provides information on 245 listed substances, specifically their on-site releases to air, surface water, land and underground injection, and off-site transfers for disposal or recycling.

The NPRI is the only legislated, nation-wide, publicly-accessible inventory of its type in Canada. The data collected are used for conducting research, creating an inventory, formulating environmental objectives and codes of practice, issuing guidelines or reporting on the state of the environment. A fundamental objective of the NPRI is to provide Canadians with access to pollutant release information for facilities located in their communities. In addition, the NPRI supports a number of regulatory and environmental initiatives by providing information that assists governments and others in identifying priorities for action, encourages industry to take voluntary measures to reduce releases and allows for the tracking of progress in reducing releases.

Although NPRI data are useful as a starting point in identifying some of the sources of pollutants and their possible risks to human health and the Canadian environment, they represent only a portion of all chemical releases and transfers to the Canadian environment from a range of industrial and non-industrial sources. Releases of a particular pollutant by a facility reporting to the NPRI should, therefore, be considered in the overall context of other pollutants and sources.

In response to requests from stakeholders to improve the timeliness of Canadians having access to NPRI data, Environment Canada released the 1999 NPRI data electronically on December 23, 2000.

The 1999 National Overview includes data for the calendar years 1997 through 1999, as they appeared in the NPRI database on February 5, 2001. Non-confidential NPRI information and data are also accessible on the Internet at Environment Canada's NPRI Web site at <www.ec.gc.ca/pdb/npri/>.

The NPRI data on the Web site are updated regularly as a result of new or revised reports submitted by facilities. As a result of revisions submitted after February 5, 2001, quantities identified in this report may, at times, differ from those in the national database.

Features of the 1999 NPRI National Overview include:

- **New substances** – Based on recommendations from multistakeholder consultations, Environment Canada added 73 substances to the NPRI List of Substances for 1999. The contribution of these substances to total on-site releases and off-site transfers for 1999 is discussed throughout the report.
- **Trend analysis of matched data for 1997 to 1999** – The trend analysis in this report examines the data reported for a consistent set of substances from 1997 to 1999. The 73 substances added in 1999 are, therefore, excluded from this analysis.
- **Accessing and Using NPRI Data** – To better inform Canadians of the releases and transfers of pollutants of concern in their communities, this report explains how to access and use NPRI data and includes an overview of the query feature on the Web site.

Highlights of the 1999 National Overview

In 1999, 2 190 facilities across Canada submitted 8 595 pollutant reports to the NPRI, of which 424 facilities submitted 621 reports on the newly-added NPRI substances. Facilities reported:

- on-site releases totalling 327 695 tonnes, of which 147 685 tonnes (or 45.1%) were attributed to the new substances
- off-site transfers for disposal totalling 131 925 tonnes, of which 4 865 tonnes (or 3.7%) were attributed to the new substances, and
- off-site transfers for recycling and energy recovery totalling 1 080 951 tonnes, of which 905 511 tonnes (or 83.8%) were attributed to the new substances.

Analysis of matched data for 1997 to 1999 reveals the following trends:

- Total on-site releases in 1999 were 5% higher than in 1997. This increase is attributable to the 61% increase in releases to land as the result of one facility reporting substantial releases of zinc (and its compounds) – see analysis in sections 4.2 and 4.5. However, releases of *CEPA*-toxic and carcinogenic pollutants decreased 3.8% from 1997 to 1999.
- Total off-site transfers for disposal in 1999 were 33% higher than in 1997, attributable to the 63% increase in transfers for final disposal, particularly to land treatment and landfill of lead, cadmium and chromium, and their compounds.
- Total off-site transfers for recycling and energy recovery in 1999 were 19% lower than in 1998, attributable to the 21% decrease in transfers for recycling activities excluding energy recovery. Transfers for recycling and energy recovery of *CEPA*-toxic and carcinogenic pollutants followed similar trends. These changes were the result of several facilities reducing or eliminating their recycling activities of sulphuric acid, manganese and zinc. Matched data is not available for 1997 because reporting of off-site transfers for recycling and energy recovery was optional in that year.

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1. Changes to the NPRI for 1999

1.1 1999 NPRI List of Substances

1.1.1 Seventy-three New Substances

Following public consultations and recommendations of the Multistakeholder Ad Hoc Work Group on Substances in 1998, Environment Canada added 73 substances to the NPRI for the 1999 reporting year, bringing the NPRI list of reportable substances to 245. The list can be found in Appendix 1.

Twenty of the substances added to the NPRI in 1999 have been identified as toxic under the *Canadian Environmental Protection Act, 1999 (CEPA, 1999)*. These include:

- ozone-depleting substances, such as chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs) and halons
- short-chain chlorinated paraffins used mainly in metal working
- inorganic fluorides
- 3,3'-dichlorobenzidine dihydrochloride, a suspected carcinogen, used to make pigments, and
- tetraethyl lead, still used in aviation gasoline in Canada.

1.1.2 Acetone de-listed

Acetone was originally included as part of the NPRI list in 1993 because it was listed on the U.S. Environmental Protection Agency's Toxics Release Inventory (TRI). Petitioned by industry to de-list acetone, the U.S. TRI reviewed the reasons and agreed. Canadian industry submitted a formal request to Environment Canada to de-list this substance from the NPRI. Environment Canada asked an independent toxicology expert to review the U.S. rationale for de-listing acetone from the U.S. TRI, and examine Canadian release and exposure data. The conclusion reached was that ambient levels of acetone in the atmosphere, even at sites adjacent to the largest releases of acetone, were below the levels of concern for exposure to humans and the environment. As such, acetone was de-listed from the NPRI in 1999, and the reasons published in Part I of the *Canada Gazette* in December 1999. This is the first time that a substance has been removed from the NPRI.

1.1.3 Xylenes amalgamated

Until 1999, xylenes were listed in the NPRI as "xylene (mixed isomers)" and three individual isomers ("*m*-xylene", "*o*-xylene" and "*p*-xylene"). Beginning in 1999, the three individual isomer listings for xylene were removed and now are reported together under "xylene (mixed isomers)". Facilities that previously manufactured, processed or otherwise used less than 10 tonnes of each individual isomer now may meet the 10-tonne threshold because individual quantities are combined.

1.2 New Methodology used by Facilities in the Pulp and Paper Sector

The pulp and paper industry and Environment Canada officials observed that there was a wide variation in the reported emissions by similar types of mills in Canada. In reviewing data from mills with similar processes in Canada and the U.S., data in

the U.S. were found to be more consistent. This was attributed to the use by U.S. mills of a handbook prepared by the National Council for Air and Stream Improvements (NCASI). NCASI compiles and maintains up-to-date emission factors for pulp and paper mills, and explains how to use them. The Canadian Pulp and Paper Association (CPPA) – recently renamed the Forest Products Association of Canada (FPAC) – commissioned NCASI to develop a technical handbook for mills reporting to the NPRI. The handbook was made available to both member and non-member mills of the FPAC. The improved estimation methodologies found in the NCASI handbook resulted, in several cases, in increased estimates of releases and transfers than reported to the NPRI in previous years.

2. Overview of the NPRI

2.1 Introduction

The 1999 National Overview is the seventh annual report in the series published under the NPRI program. This report summarizes the on-site releases and off-site transfers of 245 substances in the NPRI that were reported to Environment Canada on a facility-by-facility basis, for the calendar year 1999. The NPRI was created in 1992 to collect information on pollutants released to the environment and transferred for disposal. Since then, its role has expanded to include the collection of data on recycling and pollution-prevention activities. The program is delivered by Environment Canada.

The NPRI is the only legislated, nation-wide, publicly-accessible inventory of its type in Canada. One of the fundamental objectives of the NPRI is to provide Canadians with access to pollutant release information for facilities located in their communities. In addition, the NPRI supports a number of environmental initiatives by providing information that assists governments and others in identifying priorities for action, encourages industry to take voluntary measures to reduce releases, allows for tracking of progress in the reduction of releases, and supports a number of regulatory initiatives across Canada.

Under the authority of the *Canadian Environmental Protection Act, 1999 (CEPA, 1999)*, owners or operators of facilities that manufacture, process or otherwise use one or more of the NPRI-listed substances under prescribed conditions are required to report. The first year for which companies were required to report to the NPRI was 1993.

The requirement to report to the NPRI for the 1999 calendar year was published by the Minister of the Environment in the *Canada Gazette*, Part I in 1999, pursuant to subsection 16(1) of the predecessor to *CEPA, 1999*. Facilities were required to report by June 1, 2000.

Notices published after March 31, 2000, are under the authority of *CEPA, 1999*.

2.2 Reporting Criteria for the 1999 NPRI

Any person in Canada who owned or operated a facility was required to submit a report for 1999 to the NPRI, if they met all three of the following criteria:

- employees worked a total of 20 000 hours or more (equivalent to 10 full-time employees) during the 1999 calendar year, and
- the facility manufactured, processed or otherwise used 10 tonnes (10 000 kg) or more of an NPRI substance in the 1999 calendar year, and
- the NPRI substance was manufactured, processed or otherwise used at a concentration greater than or equal to 1% by weight, with the exception of NPRI substances considered to be by-products. An NPRI substance at less than 1% concentration is considered to be a by-product and must be included in the calculation of the 10-tonne threshold only if it was incidentally manufactured, processed or otherwise used, and it was released on site to the environment or transferred off site for disposal.

All facilities from all economic sectors that meet the reporting criteria were required to report, unless specifically exempt under the notice published in the *Canada Gazette*, Part I. Therefore, reporting may be triggered in commercial and

government services sectors, such as electrical power generation utilities, airports and municipal water- and sewage-treatment plants. Exempt facilities include those (or any part thereof) used exclusively for one of the following activities:

- education and training of students (universities, colleges and schools)
- research or testing
- the maintenance and repair of transportation vehicles
- the distribution, storage or retail sale of fuels
- the wholesale or retail sale of articles or products which contain listed substances, but which were not released during normal use at the facility
- the retail sale of listed substances
- growing, harvesting and management of renewable resources (forestry, fisheries and agriculture), but not those facilities which process or otherwise use their products
- mining, but not those facilities engaged in the further processing of mined materials, or
- the drilling or operating of oil and gas wells, but not those facilities which process or otherwise use their products.

The number of facilities reporting to the NPRI fluctuates from year to year because of:

- new facilities opening or existing facilities shutting down (either temporarily or permanently)
- facilities on the verge of meeting the 10-tonne reporting threshold which may trigger reporting in some years, but not others
- facilities that have expanded their operations and, as a result, are meeting the reporting requirements for the first time
- facilities that were previously required to report but have only recently come forward to declare themselves as reporters, or that have been identified as being required to report through Environment Canada's compliance promotion and enforcement efforts, and
- facilities that are reducing or eliminating the use of substances listed in the NPRI.

2.3 What is Reported to the NPRI?

All facilities in Canada meeting the NPRI reporting criteria are legally required to submit a report to Environment Canada if they manufacture, process or otherwise use one or more of the NPRI-listed substances under the conditions prescribed in section 2.2. A facility must submit one report for each pollutant that meets the NPRI reporting requirements. The deadline for reporting and other requirements are published annually in the *Canada Gazette*, Part I.

Reporting facilities must indicate whether the NPRI substance is manufactured, processed or otherwise used, and the nature of such activities and uses at the facility during the calendar year. They must report on-site releases and off-site transfers of pollutants, as well as facility and company information.

Facilities are required to provide information to which they can reasonably be expected to have access. In some instances, information is readily available from existing monitoring for provincial permits or licences. In other cases, various estimation methodologies are used, depending on information available and type of industry. The lowest reportable unit is 0.001 tonne, or one kilogram. In declining

order of expected accuracy, estimates can be based on direct measurements, mass balances, emission factors or engineering estimates. It is expected that improvements in estimation methods, increased familiarity of facilities with the NPRI reporting requirements, and Environment Canada's compliance promotion and enforcement activities will continue to increase data accuracy.

2.4 NPRI List of Substances

The NPRI substance list, developed through public consultation, was derived from the 1990 United States' Toxics Release Inventory, after deleting substances or classes of substances that were either not used in Canada at all, or were used in quantities smaller than one tonne per year. There were 178 substances on the first NPRI list in 1993.

Environment Canada has made minor adjustments to the list since the program's inception. For example, in 1995, "ammonium nitrate" and "ammonium sulphate" were deleted and replaced with "ammonia (total)" and "nitrate ion (in solution at a pH of 6.0 or greater)" to better capture releases of ammonia and nitrates. The reporting criteria were also changed to include NPRI by-products in the calculation of the 10-tonne reporting threshold. This change was made to identify large-volume, low-concentration releases and transfers which normally would not trigger the reporting requirements of the NPRI.

Major changes to the NPRI substance list are only made after consultation with Canadian stakeholders. As mentioned in section 1.1, three significant changes were made to the list of reportable substances for the 1999 reporting year.

Each chemical substance is identified by a Chemical Abstract Service (CAS) registry number, a unique number assigned by the American Chemical Society. A chemical may be known by several different names, but it has only one CAS number. Some of the reportable NPRI substances represent groups or classes of substances such as "copper (and its compounds)". For these groups, no specific CAS number exists.

2.5 *CEPA*-toxic and Carcinogenic Pollutants

Some substances on the NPRI list are of particular interest because they have been determined to be "*CEPA*-toxic", "carcinogenic" or "probably carcinogenic".

Under *CEPA, 1999*, a substance is defined as "toxic" if it is entering or may enter the environment in a quantity or concentration or under conditions that:

- have or may have an immediate or long-term harmful effect on the environment or its biological diversity
- constitute or may constitute a danger to the environment on which human life depends, or
- constitute or may constitute a danger in Canada to human life or health.

In determining whether a substance should be declared "toxic", the likelihood and magnitude of releases to the environment, as well as the harm it may cause to human health or ecosystems in Canada, are taken into account. If a substance is found to be toxic, it is added to the List of Toxic Substances (*CEPA* Schedule 1). Environment Canada and Health Canada work with stakeholders and other interested parties to develop management plans to reduce or eliminate the harmful effects these toxic substances could have on the environment and the health of Canadians.

The classification of carcinogens used by the NPRI program is that of the International Agency for Research on Cancer (IARC). In 1969, the IARC initiated a program to evaluate the carcinogenic risk of chemicals to humans and to produce monographs on individual chemicals. The Monographs Program has since been expanded to include consideration of exposures to complex mixtures of chemicals and to other agents, such as radiation and viruses. The monographs represent the first step in carcinogenic risk assessment, which involves examination of all relevant information to assess the strength of the available evidence that certain exposures could alter the incidence of cancer in humans. The second step is the quantitative risk estimation method.

The term "carcinogen" is used in these IARC monographs to denote an exposure that is capable of increasing the incidence of malignant neoplasm or tumour; the induction of benign neoplasm may, in some circumstances, contribute to the judgment that the exposure is carcinogenic. The IARC monographs are recognized as an authoritative source of information on the carcinogenicity of a wide range of human exposures.

IARC-1 grouped substances have been defined as agents (mixtures) which are carcinogenic to humans. The term "agent" is defined by the IARC to include individual chemical compounds, groups of related chemical compounds, physical agents (such as radiation) and biological factors (such as viruses). IARC-2A grouped substances are defined as probably carcinogenic to humans. This category is used when there is limited evidence of carcinogenicity in humans, but sufficient evidence of carcinogenicity in experimental animals.[1] The NPRI-listed carcinogenic substances include only those designated by IARC in groups 1 or 2A.

2.6 Industrial Classification Codes and Industrial Sectors

Industrial classifications are a means of identifying different types of businesses and industries. The NPRI has adopted the North American Industry Classification System (NAICS) as the standard for identifying industrial sectors to enable better comparisons of NPRI data with similar inventories in the U.S. and Mexico. The NPRI continues to collect Canadian and U.S. Standard Industrial Classification (SIC) data to maintain continuity with its historical data.

The NPRI requires facilities to report the SIC and NAICS codes that best represent the primary industrial activity of the facility. This allows the NPRI to identify trends in releases from specific industrial sectors. Environment Canada has compared the NAICS and SIC codes reported to the NPRI and found large discrepancies in the codes reported, for example, by facilities in the same sector. As a result, Environment Canada is reviewing the NAICS codes reported by facilities. However, sector-specific information in this report is based on the SIC codes. NAICS codes will likely be used to identify sectors in subsequent annual reports.

[1] Information regarding the International Agency for Research on Cancer (IARC) was obtained from the IARC Web site at <www.iarc.fr/>. This site provides information on the IARC's mission and publications (including the IARC *Monographs Evaluations* and IARC epidemiology data).

2.7 On-site Releases

An on-site release is an on-site discharge of a pollutant to the environment. This includes emissions to air, discharges to surface waters, on-site releases to land and deep-well underground injection, within the boundaries of the facility.

On-site releases are further subdivided as releases to:

- Air – stack/point, storage/handling, fugitive, spills, other non-point releases
- Surface water – discharges, spills, leaks
- Land – landfill, land treatment, spills, leaks, other
- Underground injection.

Fugitive releases are the total of all releases to air that are not released through confined process streams, such as fugitive equipment leaks from valves.

Landfills are sites in which wastes containing NPRI pollutants are buried. Most landfills found in Canada are provincially-approved waste-disposal sites. Some landfills are classified as hazardous-waste-approved, but more typically they are disposal sites for non-hazardous waste only. Regardless of classification, all landfills are required to have appropriate permits and be specifically designed under strict guidelines for use as a final disposal site for waste. For the purposes of the NPRI, on-site landfilling is reported as an on-site release. If an NPRI pollutant is transferred to an off-site landfill, it is reported as an off-site transfer for disposal.

The materials released to landfill are wastes from production or are generated as a result of pollution-control measures. These materials are put in a landfill to minimize risk to health and the environment. While landfilling is an accepted waste-management practice, a preferred option is recycling. The best approach is to prevent the generation of wastes or pollutants using pollution-prevention techniques.

Land treatment, also called application farming, is a disposal method by which a waste containing a listed pollutant is applied or incorporated into soil for biological degradation. This type of disposal method is usually approved under provincial jurisdiction. For the purposes of the NPRI, on-site land treatment is reported as an on-site release. If an NPRI pollutant is transferred off site for land treatment, it is reported as an off-site transfer for disposal.

A leak differs from a spill in terms of the time required for an event. Spills normally occur over a period of hours or days, whereas leaks occur over a period of days or months.

Underground injection is another method of waste disposal. Subject to provincial regulation, liquid wastes are injected into known geological formations, generally at great depths.

2.8 Off-site Transfers

An off-site transfer is a shipment of an NPRI-listed substance to an off-site location for disposal or for recycling. Facilities are required to provide the name and location of the off-site facility receiving the shipment.

2.8.1 Off-site Transfers for Disposal

'Disposal' is final disposal of the material (e.g., landfill) or storage and treatment (e.g., stabilization) prior to final disposal.

Information on off-site transfers for disposal includes treatment and disposal methods. Off-site treatments do not necessarily constitute an environmental release, because the pollutant may be altered chemically or physically, and may not be ultimately released in its original form. Therefore, disposal methods represent environmental releases with different environmental impacts, depending on the site and the pollutant.

Eight major off-site disposal methods are identified:

- physical treatment, such as drying, evaporation, encapsulation or vitrification
- chemical treatment, such as precipitation, stabilization and neutralization
- biological treatment, such as bio-oxidation
- incineration or thermal treatment where energy is not recovered
- containment, either in a landfill or other storage
- municipal sewage treatment plant (MSTP)
- underground injection at an off-site location, and
- land treatment, for the purpose of land application or land farming.

Off-site transfers for disposal are reported separately from on-site releases because:

- off-site transfers represent a movement of the pollutant to a different geographical location than that of the facility
- off-site transfers do not always represent entry of the pollutant into the environment, e.g., when off-site transfers are sent for treatment and the pollutants are transformed into other chemicals
- management of the pollutant may become the responsibility of another owner or operator
- reporting of off-site transfers provides complete information on the fate of the pollutant, and
- wastes may be transferred a number of times, which may lead to double-counting of those materials.

The NPRI is improving the way in which facilities identify the off-site facilities to which they transfer their wastes. This should allow the NPRI to better identify instances of double-counting of transfers in the future.

2.8.2 Off-site Transfers for Recycling

'Recycling' refers to activities that keep a material or a component of the material from becoming a waste destined for final disposal.

As a result of public consultations in 1996, the reporting of recycling activities to the NPRI became mandatory, beginning in the 1998 reporting year.

Generally, materials transferred off site for recycling include those sold to recyclers, such as metal shavings or turnings, material sent off site for processing, cleaning or reclamation and returned to the facility, and those materials sent back to suppliers for credit or payment. The recyclable material may be used in the manufacture of another product. Components may be recovered or reclaimed from

the recyclable material or the material may be used as a fuel for energy recovery. Energy recovery is applicable only when the energy recovered from combustion is used as an alternative to fossil fuels or other forms of energy.

Substances and materials transferred off site for recycling activities are not normally released to an environmental medium. Once transferred off site to another facility, the handling and further processing of those substances may result in releases, which may be reportable by that off-site facility if it meets the NPRI reporting criteria.

Ten types of recycling operations are identified, based on those set out in the *Canadian Export and Import of Hazardous Wastes Regulations* and the International Waste Identification Code developed by the Organization for Economic Cooperation and Development. These activities include:

- energy recovery
- recovery of solvents
- recovery of organic substances (not solvents)
- recovery of metals and metal compounds
- recovery of inorganic materials (not metals)
- recovery of acids or bases
- recovery of catalysts
- recovery of pollution-abatement residues
- refining or reuse of used oil, and
- other recovery, reuse and recycling activities.

With the exception of energy recovery, the recycling activities are related to the nature of the substance being recycled (solvents, organic substances, metals, acids or bases, etc.). However, the energy recovery activity is distinct because it is based on the energy content (BTU value) of the NPRI substance and its ability to be used as a fuel for energy recovery. The NPRI publishes recycling data under two categories – off-site transfers for recycling (excluding energy recovery) and off-site transfers for energy recovery.

2.9 Pollution-Prevention Activities

Reporting of pollution-prevention (P2) activities became a mandatory requirement beginning in the 1997 reporting year. It was introduced to help the federal government and others track progress in pollution prevention and to provide companies undertaking P2 activities with an additional means of demonstrating these activities to the public.

Pollution prevention is an environmental protection approach that seeks to eliminate the cause of pollution rather than managing it after it has been created. Pollution prevention is defined as:

> "the use of processes, practices, materials, products or energy that avoid or minimize the creation of pollutants and waste, and reduce the overall risk to human health or the environment". (*Pollution Prevention: A Federal Strategy for Action*, Environment Canada, June 1995)

Pollution prevention encourages changes that are likely to lead to lower production costs, resource conservation and increased efficiencies.

Generally speaking, pollution-prevention techniques and practices focus on areas such as:

- materials or feedstock substitution (e.g., using aqueous-based rather than solvent-based cleaners)
- product design or reformulation (e.g., changing product specifications to reduce or eliminate the use of toxic substances, modifying product design or composition to make them more environmentally friendly)
- equipment or process modifications (e.g., instituting recycling within a process, switching from the use of solvents to mechanical paint-stripping devices)
- spill and leak prevention (e.g., taking measures to prevent releases such as installing splash guards and drip trays around equipment)
- on-site reuse, recycling or recovery (e.g., using a small distillation unit to reclaim solvents on site)
- improved inventory management or purchasing techniques (e.g., avoiding the unnecessary generation of waste by ensuring that materials do not stay in inventory beyond shelf life, instituting a clearinghouse to exchange materials that would otherwise be discarded), and
- good operating practices or training (e.g., changing production schedules to minimize equipment and feedstock changeovers, training staff to recognize and implement P2 opportunities).

Other environmental protection approaches focus on waste management. These include pollution-control and waste-treatment activities as well as off-site recycling and disposal activities. These approaches also reduce environmental and health risks by ensuring that pollution or waste that is not prevented is well managed.

2.9.1 Reporting Pollution-Prevention Activities to the NPRI

Facilities that have taken measures to prevent the generation of NPRI pollutants and wastes are asked to indicate, from the list of pollution-prevention techniques and practices provided, what type of P2 activities they have implemented, on a substance-by-substance basis. They are asked to provide qualitative data only, but are encouraged to provide further details on the nature of their P2 activities if they so desire (including environmental and economic benefits).

Facilities are required to report on their P2 activities for NPRI-listed substances only. However, they are also encouraged to provide information on other P2 initiatives (e.g., P2 activities for non-NPRI substances, water and energy conservation initiatives, etc.).

Qualitative reporting provides limited basic information on P2 activity. Qualitative data, such as the information provided by facilities reporting to the NPRI, indicate if P2 activity has occurred in reporting facilities, but do not indicate either the extent of these activities (frequency, comprehensiveness) or their effect on the generation of pollutants and waste.

2.10 How to Obtain NPRI Information

There are many ways to obtain information on releases and transfers of NPRI pollutants nationally, provincially and at the local community level.

2.10.1 Annual Reports

Since 1994, Environment Canada has published an annual report of NPRI data submitted by facilities across Canada. The reports include information on the NPRI-listed substances and their releases on site to the environment and off-site transfers for disposal or recycling. Information is presented on a national basis, summarizing releases by environmental medium, by pollutant and by industrial sector, with comparisons to the previous year's data.

Other 1999 reports and analyses may be developed and made available to the public throughout 2001 on the NPRI Web site at <www.ec.gc.ca/pdb/npri>. Electronic versions of previously-published annual summary reports, and databases, are also available via download or on CD.

2.10.2 Web Site

All non-confidential NPRI information and data are also accessible on the NPRI Web site. The Web site includes background information on the NPRI, provides news on upcoming events, highlights stakeholder consultation activities and provides links to relevant Web sites in North America and around the globe. It provides access to current and previous NPRI reporting requirements, guidance documents and downloadable data products.

In addition, the NPRI Web site allows the user to query the NPRI database on specific facilities in each of the reporting years. This interactive querying feature allows the user to find detailed information on a facility or informative summaries based upon substance, location or industrial sector. Data and trend analysis over several years is provided in chart form.

2.11 Factors to Consider when Using NPRI Data

NPRI data provide publicly-available annual records of on-site releases and off-site transfers of listed pollutants from facilities operating in Canada. However, NPRI data represent only a portion of all chemical releases and transfers to the Canadian environment.

Other substances, such as greenhouse gases (e.g., carbon dioxide and methane), many pesticides and other pollutants are not part of the current list of NPRI substances and may be reported to other inventories or managed under other programs.

While the NPRI program currently collects pollutant release and transfer data from a broad range of industrial and non-industrial sectors, not all sources are captured by the NPRI. For example, industrial and stationary fuel combustion sources and mobile sources (e.g., automobiles and trucks), are known to be major contributors of hazardous air pollutants (e.g., benzene and 1,3-butadiene, both of which are *CEPA*-toxic/carcinogenic pollutants). Long-range transboundary air pollution (LRTAP) from other countries may be a contributor of persistent organic pollutants (POPs) and heavy metals (HM) such as cadmium and mercury.

Facilities that do not meet the reporting thresholds because of their size (either the number of employees or the quantity of substances used), such as dry cleaners, or because they are exempt, such as gas stations, do not report to the NPRI. Collectively, however, releases from these sources may account for the majority of releases of some pollutants.

Releases of a particular pollutant by a facility reporting to the NPRI should be considered in the overall context of these other pollutants, other sources and smaller-sized facilities.

Several factors must be considered before drawing conclusions on the environmental performance of specific facilities or industrial sectors. In examining the amount of total releases of any one sector or changes in releases by a facility from previous years, consideration should be given to the fact that, in 1999, there were 245 reportable substances (of which 73 were reported for the first time) compared to 176 in 1998. It is, therefore, important to consider more than the magnitude of releases. The amounts released relative to the size of the facility or sector should be considered, as well as the complexity of the process and the best-available technologies. It would be incorrect to assume that facilities or industrial sectors with the largest releases or transfers are less inclined than others toward pollution prevention and control.

As noted in section 1.2, many pulp and paper facilities reported releases from more sources in 1999 than in the past and, as a consequence, higher releases of NPRI pollutants. This does not necessarily mean that releases by the pulp and paper industry have actually increased. Rather, it indicates better reporting in terms of the number of pollutants and greater accuracy in calculating releases.

Risk to human health and the environment from on-site releases of pollutants cannot be determined from NPRI data alone. Although the data are useful as a starting point in identifying potential risks, other information is required before such assessments can be made.

Risk depends on many factors, such as the toxicity of the pollutant, the extent of the exposure, the type of release or transfer and the environmental medium to which the pollutant is released. The amount of releases of some pollutants may not necessarily be commensurate with their environmental or health impacts. Conversely, smaller releases of specific pollutants may have significant impacts.

3. NPRI Pollutants in Canada

One of the main purposes of the NPRI is to provide Canadians with a tool to track what industry is releasing to the environment in their communities. It also allows facilities, through their reports, to demonstrate their efforts in reducing the releases of pollutants to the environment in Canada.

3.1 Confidential Information

Pursuant to sections 51 and 313 of *CEPA, 1999*, any person who provides information in response to an NPRI *Canada Gazette* notice may submit a written request that it be treated as confidential based on the reasons set out in section 52 of *CEPA, 1999*. A request for confidentiality will be denied if the data are already in the public domain.

The NPRI does not include confidential data in any public documents. It does, however, report in its annual report the number of facilities granted confidential status and their overall contribution to on-site releases and off-site transfers.

At the time of publication of this report, six facilities were granted confidential status for information provided to the NPRI in 1999. The following data were reported by those facilities for the 1999 reporting year:

- Number of pollutant reports submitted: 46
- Total on-site releases: 146 tonnes
- Total off-site transfers for disposal: 3 885 tonnes
- Total off-site transfers for recycling and energy recovery: 242 tonnes

Data presented in this National Overview do not include the confidential information listed above.

3.2 1999 NPRI Data

For the 1999 reporting year, 245 substances were listed in the NPRI, including the 73 newly-added substances. A facility must submit one report for each pollutant that meets the NPRI reporting requirements as outlined in section 2.2.

In 1999, a total of 2 190 facilities across Canada submitted 8 595 reports for 172 substances, of which 424 facilities (or 19.4% of all facilities) filed 621 reports (or 7.2% of all reports) for 41 new substances (see Table 3-1).

TABLE 3-1
NATIONAL SUMMARY OF NPRI INFORMATION IN 1999 - *(ALL DATA)*

	1999 All Substances	1999 New Substances	% Attributable to New Substances
Total Facilities	**2 190**	**424**	**19.4**
Total Reports	**8 595**	**621**	**7.2**
Pollutants Reported	**172**	**41**	**23.8**
On-site Releases (tonnes):			
Air	127 311.8	14 297.2	11.2
Water	**20 789.7**	**107.4**	**0.5**
Land	43 833.5	13 327.7	30.4
Underground Injection	**135 562.2**	**119 937.9**	**88.5**
Total On-site Releases	**327 694.9**	**147 684.9**	**45.1**
Off-site Transfers for Treatment Prior to Final Disposal (tonnes):			
Physical	2 165.2	208.9	9.6
Chemical	**9 758.2**	**331.6**	**3.4**
Biological	1 203.9	0.0	0.0
Incineration	**11 427.2**	**1 103.4**	**9.7**
MSTP	10 091.1	194.4	1.9
Total Off-site Treatment	**34 645.7**	**1 838.2**	**5.3**
Off-site Transfers for Final Disposal (tonnes):			
Landfill	86 035.4	2 910.2	3.4
Storage	**4 099.6**	**19.2**	**0.5**
Underground Injection	6 337.1	66.4	1.0
Land Treatment	**807.4**	**31.0**	**3.8**
Total Off-site Final Disposal	**97 279.5**	**3 026.8**	**3.1**
Total Off-site Transfers for Disposal	**131 925.2**	**4 865.0**	**3.7**
Off-site Transfers for Recycling (tonnes):			
Recycling	1 066 210.4	905 423.8	84.9
Energy Recovery	**14 740.3**	**86.9**	**0.6**
Total Off-site Transfers for Recycling	**1 080 950.8**	**905 510.6**	**83.8**

Note: Because of rounding of on-site release and off-site transfer quantities, the totals may not equal the sum of the individual values.

TABLE 3-1
NATIONAL SUMMARY OF NPRI INFORMATION IN 1999 - *(ALL DATA)*

	1999 All Substances	1999 New Substances	% Attributable to New Substances
Total Facilities	**2 190**	**424**	**19.4**
Total Reports	**8 595**	**621**	**7.2**
Pollutants Reported	**172**	**41**	**23.8**
On-site Releases (tonnes):			
Air	127 311.8	14 297.2	11.2
Water	**20 789.7**	**107.4**	**0.5**
Land	43 833.5	13 327.7	30.4
Underground Injection	**135 562.2**	**119 937.9**	**88.5**
Total On-site Releases	**327 694.9**	**147 684.9**	**45.1**
Off-site Transfers for Treatment Prior to Final Disposal (tonnes):			
Physical	2 165.2	208.9	9.6
Chemical	**9 758.2**	**331.6**	**3.4**
Biological	1 203.9	0.0	0.0
Incineration	**11 427.2**	**1 103.4**	**9.7**
MSTP	10 091.1	194.4	1.9
Total Off-site Treatment	**34 645.7**	**1 838.2**	**5.3**
Off-site Transfers for Final Disposal (tonnes):			
Landfill	86 035.4	2 910.2	3.4
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Total Off-site Transfers for Disposal	**131 925.2**	**4 865.0**	**3.7**
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Recycling	1 066 210.4	905 423.8	84.9
Energy Recovery	**14 740.3**	**86.9**	**0.6**
Total Off-site Transfers for Recycling	**1 080 950.8**	**905 510.6**	**83.8**

Note: Because of rounding of on-site release and off-site transfer quantities, the totals may not equal the sum of the individual values.

3.3 All NPRI Data and Matched NPRI Data (1997-1999)

An 'all data' set represents all NPRI information reported by facilities in a given year. As noted in section 3.2, the 'all data' set for 1999 provides information on 172 of the 245 reportable substances in the 1999 NPRI, including 41 that were reported for the first time. In comparison, the 'all data' set for 1998 provides information on 136 of the 176 reportable substances in the 1998 NPRI. Since the NPRI list changed significantly in 1999, it is not meaningful to compare the 1999 'all data' set with those from previous years.

The three-year 'matched data' set selects facilities that submitted reports on a common core of substances in 1997, 1998 and 1999, as shown Table 3-2. Thus the 'matched data' set excludes information on the following:

- For 1999: the 73 substances added to the NPRI and the facilities that reported only those substances.
- For 1997 and 1998: acetone reports and the facilities that reported only that substance because acetone was removed for the 1999 reporting year.
- For 1997, 1998 and 1999: facilities in the 'paper and allied products industries' sector (SIC code 27). In 1999, many, but not all, pulp and paper facilities in Canada reported releases from more sources than in the past, as a result of the development of a technical handbook by NCASI (see section 1.2).

The 'matched data' set allows for comparisons of on-site releases and off-site transfers of pollutants over a multi-year period. It also provides a perspective on trends, which is useful in understanding large changes in releases or transfers of pollutants.

TABLE 3-2
NATIONAL SUMMARY OF NPRI INFORMATION (1997-1999) - *(MATCHED DATA)*

	1997	1998	1999	% Change (1997-1999)	% Change (1998-1999)
Total Facilities	**1 865**	**1 911**	**2 044**	**9.6**	**7.0**
Total Reports	**6 819**	**6 966**	**7 404**	**8.6**	**6.3**
Pollutants Reported	**136**	**135**	**131**	**-3.7**	**-3.0**
On-site Releases (tonnes):					
Air	90 968.4	88 958.9	89 560.9	-1.5	0.7
Water	15 298.0	12 320.5	14 603.5	-4.5	18.5
Land	18 324.4	18 313.0	29 429.7	60.6	60.7
Underground Injection	17 664.6	16 419.7	15 624.3	-11.5	-4.8
Total On-site Releases	**142 455.7**	**136 190.3**	**149 399.5**	**4.9**	**9.7**
Off-site Transfers for Treatment Prior to Final Disposal (tonnes):					
Physical	3 483.2	2 251.8	1 938.4	-44.4	-13.9
Chemical	10 569.2	8 662.3	9 424.1	-10.8	8.8
Biological	1 472.1	1 099.5	1 199.7	-18.5	9.1
Incineration	12 090.1	11 447.9	10 295.1	-14.8	-10.1
MSTP	9 998.2	9 249.8	9 883.5	-1.1	6.9
Total Off-site Treatment	**37 612.8**	**32 711.3**	**32 740.8**	**-13.0**	**0.1**
Off-site Transfers for Final Disposal (tonnes):					
Landfill	49 093.3	44 138.9	82 489.6	68.0	86.9
Storage	3 896.6	3 645.9	4 033.2	3.5	10.6
Underground Injection	4 334.4	4 379.0	6 270.7	44.7	43.2
Land Treatment	204.3	383.0	743.6	264.0	94.1
Total Off-site Final Disposal	**57 528.6**	**52 546.8**	**93 537.2**	**62.6**	**78.0**
Total Off-site Transfers for Disposal	**95 141.4**	**85 258.1**	**126 278.0**	**32.7**	**48.1**
Off-site Transfers for Recycling (tonnes):					
Recycling	N/A	202 865.0	160 615.0	N/A	-20.8
Energy Recovery	N/A	12 355.9	14 652.6	N/A	18.6
Total Off-site Transfers for Recycling	**N/A**	**215 220.9**	**175 267.6**	**N/A**	**-18.6**

Note: Because of rounding of on-site release and off-site transfer quantities, the totals may not equal the sum of the individual values.

TABLE 3-2
NATIONAL SUMMARY OF NPRI INFORMATION (1997-1999) - *(MATCHED DATA)*

	1997	1998	1999	% Change (1997-1999)	% Change (1998-1999)
Total Facilities	1 865	1 911	2 044	9.6	7.0
Total Reports	6 819	6 966	7 404	8.6	6.3
Pollutants Reported	136	135	131	-3.7	-3.0
On-site Releases (tonnes):					
Air	90 968.4	88 958.9	89 560.9	-1.5	0.7
Water	15 298.0	12 320.5	14 603.5	-4.5	18.5
Land	18 324.4	18 313.0	29 429.7	60.6	60.7
Underground Injection	17 664.6	16 419.7	15 624.3	-11.5	-4.8
Total On-site Releases	142 455.7	136 190.3	149 399.5	4.9	9.7
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Physical	3 483.2	2 251.8	1 938.4	-44.4	-13.9
Chemical	10 569.2	8 662.3	9 424.1	-10.8	8.8
Biological	1 472.1	1 099.5	1 199.7	-18.5	9.1
Incineration	12 090.1	11 447.9	10 295.1	-14.8	-10.1
MSTP	9 998.2	9 249.8	9 883.5	-1.1	6.9
Total Off-site Treatment	37 612.8	32 711.3	32 740.8	-13.0	0.1
Off-site Transfers for Final Disposal (tonnes):					
Landfill	49 093.3	44 138.9	82 489.6	68.0	86.9
Storage	3 896.6	3 645.9	4 033.2	3.5	10.6
Underground Injection	4 334.4	4 379.0	6 270.7	44.7	43.2
Land Treatment	204.3	383.0	743.6	264.0	94.1
Total Off-site Final Disposal	57 528.6	52 546.8	93 537.2	62.6	78.0
Total Off-site Transfers for Disposal	95 141.4	85 258.1	126 278.0	32.7	48.1
Off-site Transfers for Recycling (tonnes):					
Recycling	N/A	202 865.0	160 615.0	N/A	-20.8
Energy Recovery	N/A	12 355.9	14 652.6	N/A	18.6
Total Off-site Transfers for Recycling	N/A	215 220.9	175 267.6	N/A	-18.6

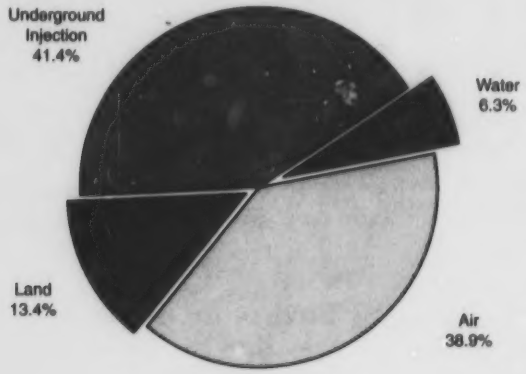
Note: Because of rounding of on-site release and off-site transfer quantities, the totals may not equal the sum of the individual values.

4. On-site Releases in Canada

4.1 On-site Releases in 1999

In 1999, facilities across Canada reported on-site releases totalling 327 695 tonnes. More specifically, releases to air accounted for 127 312 tonnes (or 38.9% of total on-site releases), releases to surface water for 20 790 tonnes (or 6.3%), releases to land for 43 834 tonnes (or 13.4%), and releases underground by means of injection for 135 562 tonnes (or 41.4%).

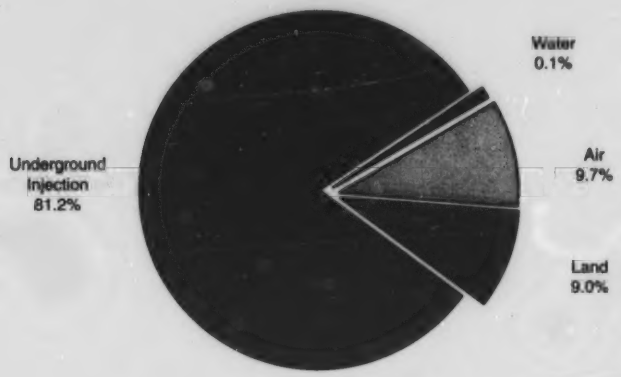
Figure 4-1
On-site Releases in 1999 - *(all data)*



Total On-site Releases: 327 695 tonnes

Only 41 of the 73 substances added to the NPRI were reported in 1999. The new substances represented 45.1% (or 147 685 tonnes) of on-site releases. Some 81.2% (or 119 938 tonnes) of the new substances were released underground by means of injection. Releases to air accounted for 9.7% (or 14 297 tonnes) and to land for 9.0% (or 13 328 tonnes); releases to water of these new substances were negligible (less than 0.1%).

Figure 4-2
On-site Releases of New Substances in 1999



Total On-site Releases: 147 685 tonnes

4.2 On-site Releases by Environmental Medium in 1999 – 25 NPRI Pollutants Released in the Largest Quantities

Table 4-1 highlights the 25 NPRI pollutants released on site in the largest quantities in 1999, by environmental medium. On-site releases of these pollutants accounted for 93% (or 306 292 tonnes) of total on-site releases. Facilities submitted 3 664 reports (or 63% of the total received) for these 25 pollutants.

In 1999, the six pollutants released on site in the largest quantities were:

1. Hydrogen sulphide - 127 869 tonnes
2. Ammonia (total) - 37 280 tonnes
3. Methanol - 26 775 tonnes
4. Zinc (and its compounds) - 16 670 tonnes
5. Calcium fluoride - 13 056 tonnes
6. Hydrochloric acid - 11 666 tonnes

Hydrogen sulphide and calcium fluoride are among the substances added to the NPRI for 1999. More than 80% (or 105 011 tonnes) of hydrogen sulphide releases were to underground by means of injection, by three facilities – TransCanada Midstream, Stoddard Gas Processing Plant (NPRI #5286), Westcoast Gas Services Inc., Jedney Gas and Processing Facility (NPRI #5125) and TransCanada Midstream, Zama Gas Processing Complex (NPRI #5285).

Raw natural gas produced from the wells contains hydrogen sulphide (H_2S), which must be removed to meet pipeline specification for safe transport to markets. The sulphur element in H_2S is corrosive and can damage equipment. Concentration of H_2S in raw natural gas can vary greatly from one gas field to another; sweet gas is raw gas with low H_2S content, while sour gas is raw gas with high H_2S content. The removal of H_2S is often done at gas processing plants, such as the three facilities mentioned above, by a selective absorption process. The process is a closed loop whereby the amine is contacted with the raw natural gas and subsequently regenerated by heating. During the regeneration of the amine, an acid gas stream containing primarily H_2S and CO_2 is produced. The acid gas stream may be flared, processed to recover elemental sulphur or injected into underground reservoirs, as done at the facilities mentioned above. Some of this acid gas could be re-injected to maintain pressure in a gas formation, in order to enhance the production of raw natural gas. The operations of gas processing plants are regulated by the provinces.

By comparison, in 1998 the following six pollutants were released on site in the largest quantities:

1. Ammonia (total) - 37 478 tonnes
2. Methanol - 23 223 tonnes
3. Sulphuric acid - 12 096 tonnes
4. Hydrochloric acid - 11 994 tonnes
5. Xylene (mixed isomers) - 7 064 tonnes
6. Zinc (and its compounds) - 6 272 tonnes

A notable increase in 1999 was the on-site release of zinc (and its compounds). The 65% increase was attributable to one facility – Safety-Kleen Ltd., Lambton Facility (NPRI #2537). This is a landfill facility, so the amount of NPRI pollutants, such as zinc and lead, that are released each year can vary, depending upon the facility's clients and the amounts of wastes received. In 1999, the facility received large amounts of zinc and lead from some of its major clients.

TABLE 4-1
ON-SITE RELEASES BY ENVIRONMENTAL MEDIUM IN 1999 – 25 NPRI POLLUTANTS RELEASED IN THE LARGEST QUANTITIES - (TONNES) - *(ALL DATA)*

CAS #	Pollutant	Air	Underground Injection	Water	Land	Total
7783-06-4	Hydrogen sulphide	7 976.5	119 871.8	18.8	0.0	127 868.7
N/A	Ammonia (total)	17 314.1	8 397.7	11 154.6	409.7	37 280.4
67-56-1	Methanol	20 566.7	4 238.2	1 844.7	111.4	26 775.2
N/A	Zinc (and its compounds)	709.8	0.1	206.9	15 744.6	16 669.5
7789-75-5	Calcium fluoride	19.5	0.0	0.0	13 035.7	13 056.2
7647-01-0	Hydrochloric acid	11 630.6	0.0	20.8	9.6	11 665.8
7664-93-9	Sulphuric acid	9 369.2	0.0	62.6	19.8	9 456.8
108-88-3	Toluene	7 191.4	72.0	2.4	10.5	7 289.5
1330-20-7	Xylene (mixed isomers)	6 909.7	46.3	3.6	5.4	6 977.9
N/A	Nitrate ion (in solution at a pH of 6.0 or greater)	71.8	191.9	6 274.1	230.1	6 769.8
78-93-3	Methyl ethyl ketone	5 079.7	790.0	0.0	0.0	5 876.3
75-15-0	Carbon disulphide	4 245.1	0.0	0.0	0.0	4 246.1
N/A	Manganese (and its compounds)	143.3	0.0	790.2	3 196.3	4 141.9
7664-39-3	Hydrogen fluoride	3 541.0	0.0	0.0	0.0	3 542.0
N/A	Lead (and its compounds)	481.5	0.0	14.3	2 995.2	3 495.3
110-54-3	*n*-Hexane	3 405.2	15.3	0.4	1.8	3 428.9
107-21-1	Ethylene glycol	283.7	532.3	28.1	1 804.2	2 653.2
75-09-2	Dichloromethane	2 387.5	0.0	0.0	0.0	2 388.9
74-85-1	Ethylene	2 167.4	0.0	0.0	0.0	2 168.5
100-42-5	Styrene	2 093.0	0.4	0.0	0.0	2 097.9
67-63-0	Isopropyl alcohol	1 953.3	8.4	0.9	0.0	1 970.4
1332-21-4	Asbestos (friable form)	0.0	0.0	0.0	1 725.1	1 725.7
50-00-0	Formaldehyde	1 610.7	4.7	36.4	2.4	1 656.3
111-76-2	2-Butoxyethanol	1 566.0	0.0	0.0	0.0	1 567.9
71-43-2	Benzene	1 424.4	93.0	1.1	0.6	1 523.1
Total Largest On-site Releases		**112 141.0**	**134 262.0**	**20 459.7**	**39 302.4**	**306 292.1**
National Total - On-site Releases		**127 311.8**	**135 562.2**	**20 789.7**	**43 833.5**	**327 694.9**
% of National Total		**88.1**	**99.0**	**98.4**	**89.7**	**93.5**

TABLE 4-1
ON-SITE RELEASES BY ENVIRONMENTAL MEDIUM IN 1999 – 25 NPRI POLLUTANTS RELEASED IN THE LARGEST QUANTITIES - (TONNES) - *(ALL DATA)*

CAS #	Pollutant	Air	Underground Injection	Water	Land	Total
7783-06-4	Hydrogen sulphide	7 976.5	119 871.8	18.8	0.0	127 868.7
N/A	Ammonia (total)	17 314.1	8 397.7	11 154.6	409.7	37 280.4
67-56-1	Methanol	20 566.7	4 238.2	1 844.7	111.4	26 775.2
N/A	Zinc (and its compounds)	709.8	0.1	206.9	15 744.6	16 669.5
7789-75-5	Calcium fluoride	19.5	0.0	0.0	13 035.7	13 056.2
7647-01-0	Hydrochloric acid	11 630.6	0.0	20.8	9.6	11 665.8
7664-93-9	Sulphuric acid	9 369.2	0.0	62.6	19.8	9 456.8
108-88-3	Toluene	7 191.4	72.0	2.4	10.5	7 289.5
1330-20-7	Xylene (mixed isomers)	6 909.7	46.3	3.6	5.4	6 977.9
N/A	Nitrate ion (in solution at a pH of 6.0 or greater)	71.8	191.9	6 274.1	230.1	6 769.8
78-93-3	Methyl ethyl ketone	5 079.7	790.0	0.0	0.0	5 876.3
75-15-0	Carbon disulphide	4 245.1	0.0	0.0	0.0	4 246.1
N/A	Manganese (and its compounds)	143.3	0.0	790.2	3 196.3	4 141.9
7664-39-3	Hydrogen fluoride	3 541.0	0.0	0.0	0.0	3 542.0
N/A	Lead (and its compounds)	481.5	0.0	14.3	2 995.2	3 495.3
110-54-3	*n*-Hexane	3 405.2	15.3	0.4	1.8	3 428.9
107-21-1	Ethylene glycol	283.7	532.3	28.1	1 804.2	2 653.2
75-09-2	Dichloromethane	2 387.5	0.0	0.0	0.0	2 388.9
74-85-1	Ethylene	2 167.4	0.0	0.0	0.0	2 168.5
100-42-5	Styrene	2 093.0	0.4	0.0	0.0	2 097.9
67-63-0	Isopropyl alcohol	1 953.3	8.4	0.9	0 0	1 970.4
1332-21-4	Asbestos (friable form)	0.0	0.0	0.0	1 725.1	1 725.7
50-00-0	Formaldehyde	1 610.7	4.7	36.4	2.4	1 656.3
111-76-2	2-Butoxyethanol	1 566.0	0.0	0.0	0.0	1 567.9
71-43-2	Benzene	1 424.4	93.0	1.1	0.6	1 523.1
Total Largest On-site Releases		**112 141.0**	**134 262.0**	**20 459.7**	**39 302.4**	**306 292.1**
National Total - On-site Releases		**127 311.8**	**135 562.2**	**20 789.7**	**43 833.5**	**327 694.9**
% of National Total		**88.1**	**99.0**	**98.4**	**89.7**	**93.5**

4.3 On-site Releases by Industrial Sector in 1999

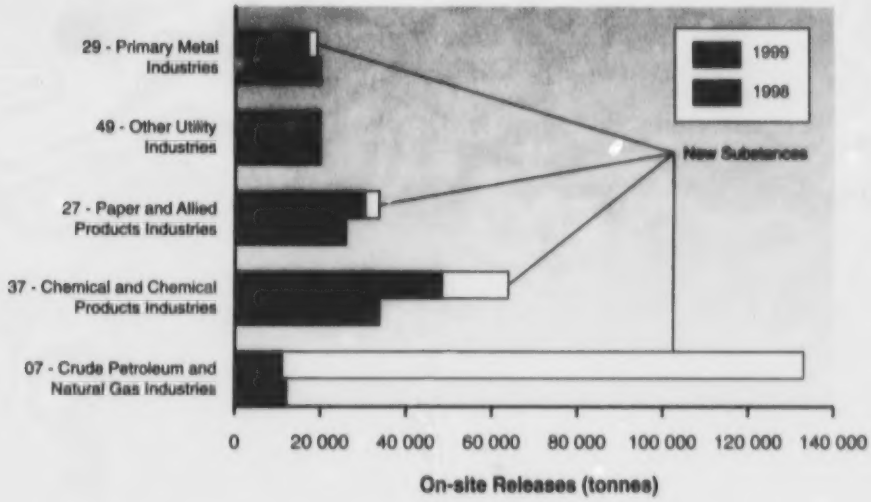
In 1999, the five industrial sectors reporting the largest on-site releases accounted for more than 80% (or 268 542 tonnes) of total releases. They were:

1. SIC 07 - Crude Petroleum and Natural Gas Industries - 132 718 tonnes
2. SIC 37 - Chemical and Chemical Products Industries - 63 646 tonnes
3. SIC 27 - Paper and Allied Products Industries - 33 830 tonnes
4. SIC 49 - Other Utility Industries - 19 532 tonnes
5. SIC 29 - Primary Metal Industries - 18 815 tonnes

They were also the five industrial sectors reporting the largest on-site releases in 1998, although the ranking among them was slightly different.

Figure 4-3 highlights these five sectors' reported on-site releases in 1998 and 1999. The chart also displays that portion of the releases attributed to the new substances reported in 1999.

Figure 4-3
Five Industrial Sectors Reporting the Largest On-site Releases in 1998 and 1999 - *(all data)*



In 1999, the 'crude petroleum and natural gas industries' sector reported the largest on-site releases with 132 718 tonnes, of which 121 884 tonnes were attributable to releases of newly-added substances. Releases of hydrogen sulphide, primarily by means of underground injection, accounted for 113 097 tonnes.

The 'chemical and chemical products industries' sector reported the second-largest on-site releases with 63 646 tonnes in 1999, of which 15 429 tonnes were releases of new substances. Releases of calcium fluoride, a new substance, accounted for 12 998 tonnes, with one facility reporting releases of 12 991 tonnes – Sécal, Usine Vaudreuil (NPRI #2978). Releases of zinc (and its compounds) increased to 11 649 tonnes, from 6 tonnes in 1998, with one facility reporting an augmentation of 11 645 tonnes, as noted in section 4.2.

Sécal, Usine Vaudreuil is an electro-chemical facility that handles some of the wastes from several Alcan Primary Metal facilities, such as the lining of the electrolytic tanks where metal aluminum is produced. In 1999, the facility recovered calcium fluoride from these linings and released the substance to land on site. The aluminum industry uses calcium fluoride as a reactant, or a chemical aid to lower the melting temperature in the electrolytic bath where metal aluminum is produced from alumina.

Ranked third was the 'paper and allied products industries' sector, reporting 33 830 tonnes released on site in 1999, of which 3 220 tonnes were attributable to new substances. As outlined in section 1.2, reporting methods were improved for 1999.

The 'other utility industries' sector ranked fourth, with 19 532 tonnes released on site in 1999. Releases of new substances were negligible for this sector.

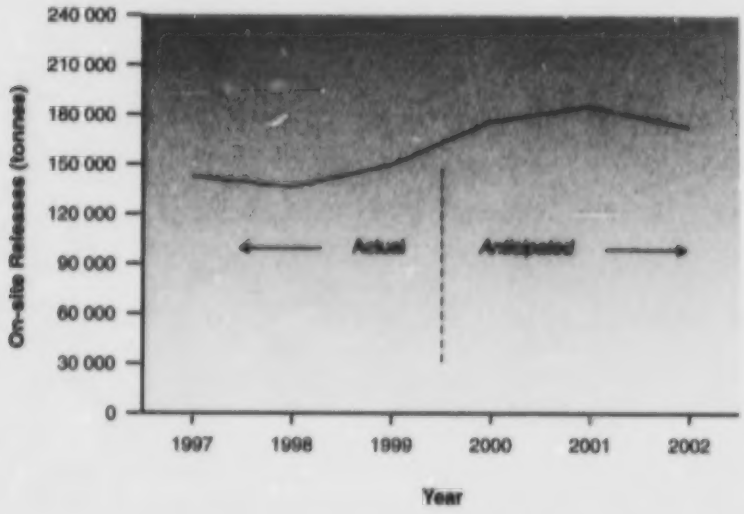
The 'primary metal industries' sector ranked fifth, with 18 815 tonnes released on site in 1999, of which 1 987 tonnes were new substances.

4.4 Anticipated On-site Releases (2000-2002)

Facilities were required to provide projected estimates for on-site releases for the next three years (2000-2002). Estimates for 2003 and 2004 were requested, but were optional. Facilities may consider a number of factors before providing on-site release estimates, including anticipated production rates, economic conditions and process changes.

Figure 4-4 shows reported on-site releases for 1997, 1998, 1999 and projected amounts for 2000 through 2002 as reported in 1999, for matched data only (see definition of matched data in section 3.3).

Figure 4-4
Actual and Anticipated On-site Releases (1997-2002) - *(matched data)*



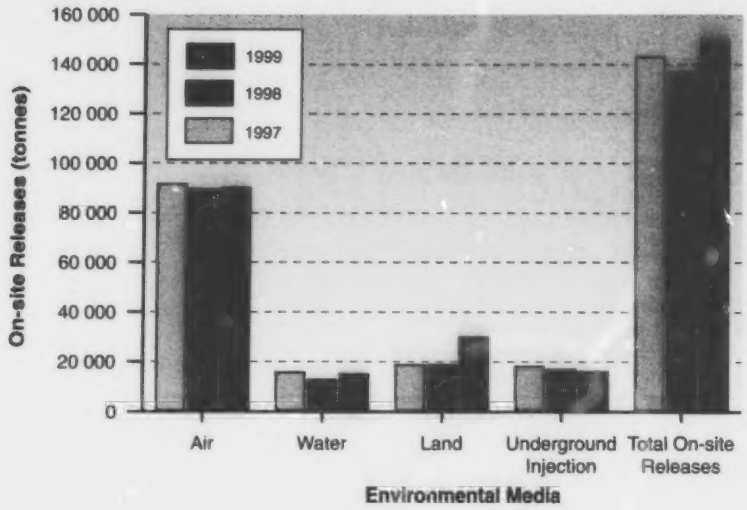
4.5 Trends in On-site Releases (1997-1999)

There were significant changes to the NPRI list of reportable substances between 1998 and 1999. To assess trends in on-site releases, a matched data set (as defined in section 3.3) was used to perform the analysis over a three-year period, from 1997 to 1999.

Table 3-2 shows that the matched data represent a common core of 172 substances in the NPRI. From 1997 to 1999, the number of facilities reporting to the NPRI for that same list of substances increased 9.6%, while the number of pollutant reports increased 8.6%. However, the number of pollutants for which a report had been filed varied from year to year. For 1999, the matched data set represented:

- 93.3% of 2 190 facilities reporting to the NPRI
- 86.1% of 8 595 pollutant reports
- 76.2% of 172 substances for which a report was submitted to the NPRI
- 45.6% of total on-site releases reported (327 695 tonnes)

Figure 4-5
Trends in On-site Releases (1997-1999) - *(matched data)*



For matched data, the following trends can be observed:

- In 1999, reported on-site releases in Canada were 149 400 tonnes, 9.7% (or 13 209 tonnes) higher than in 1998. The number of facilities reporting to the NPRI increased 7.0%.
- In 1998, on-site releases amounted to 136 190 tonnes, 4.4% (or 6 265 tonnes) lower than in 1997.
- Overall, over a three-year period, on-site releases in Canada rose 4.9% from 142 456 tonnes in 1997 to 149 400 tonnes in 1999, while the number of facilities reporting to the NPRI increased 9.6%.

Highlights of on-site releases from Table 3-2 and Figure 4-5 follow:

- Releases to air were 89 561 tonnes in 1999, in the same range as in the previous two years.
- Releases to water totalled 14 604 tonnes in 1999, an increase of 18.5% from 1998, but below the 1997 level.
- Releases to land were 29 430 tonnes in 1999, 61% higher than in 1998 and 1997. As outlined in section 4.2, this large increase was attributable to one facility reporting substantial releases of zinc (and its compounds) in 1999.
- Releases by underground injection totalled 15 624 tonnes in 1999, a decrease of 4.8% from 1998 and 11.5% from 1997.

4.6 On-site Releases by Facility in 1999

On-site release information from facilities reporting to the NPRI is illustrated in Tables 4-2 and 4-3. This facility listing was based on the largest change in on-site releases by specific pollutant reported to the NPRI from 1998 to 1999. These facilities reported actual changes in releases, as compared to changes attributable to improved methodologies used in estimating these releases.

Appendix 2 presents the largest on-site releases of NPRI pollutants in 1999. A maximum of 10 facilities are listed for each pollutant; the total releases and number of all reports for each pollutant are also provided.

TABLE 4-2
FIVE FACILITIES REPORTING THE LARGEST DECREASE IN ON-SITE RELEASES FROM 1998 TO 1999 - *(ALL DATA)*

Facility	NPRI Pollutant and Reported Releases	Comments Provided by Facility
NPRI #0444 Inco Limited Copper Cliff Smelter Complex Copper Cliff, ON	Sulphuric acid • 2 796 tonnes in 1998 • 1 721.87 tonnes in 1999 • decrease of 1 074.13 tonnes (-38.4%)	No comments provided by facility.
NPRI #2515 Simplot Canada Limited Brandon, MB	Ammonia (total) • 1 733.72 tonnes in 1998 • 997.66 tonnes in 1999 • decrease of 736.06 tonnes (-42.5%)	1998 and 1999 were startup years for new plants in our facility. Our new ammonia plant was brought on line in 1998. In 1999 the facility was through the startup/ commissioning phase and had much lower emissions when compared to 1998. At the same time we added a second granular urea plant and increased liquid urea production in 1999, slightly increasing emissions in those areas as the startup process was undertaken. Improvements to prevent pollution in the urea area has included tighter pH control and improved procedures.
NPRI #0444 Inco Limited Copper Cliff Smelter Complex Copper Cliff, ON	Chromium (and its compounds) • 1 545 tonnes in 1998 • 920 tonnes in 1999 • decrease of 625 tonnes (-40.5%)	No comments provided by facility.
NPRI #2274 Syncrude Canada Ltd. Mildred Lake Plant Site Fort McMurray, AB	Ammonia (total) • 1 619.03 tonnes in 1998 • 1 061.69 tonnes in 1999 • decrease of 557.34 tonnes (-34.4%)	Main Stack NH_3 release estimates are lower for '99 than for '98. NH_3 & H_2SO_4 measured in '99 at the 300' level of the Main Stack during 6 Main Stack surveys, is correlated with CO boiler operating rate and sour water stripper operation to estimate annual NH_3 and H_2SO_4 releases. Syncrude's approved 98 Upgrader Expansion application contains plans to recover SO_2 and Plants 16-1/2 NH_3 from Syncrude's Main Stack using Flue Gas Desulfurization coupled with ammonium sulfate fertilizer production (Marsulex process). Plant 16-0 tailgas will continue to be routed to the CO boiler for incineration. Diverter stack usage was reduced in 1999 relative to 1998 reducing estimated releases of NH_3 from this source as well.
NPRI #4700 NOVA Chemicals Ltd. St. Clair River Site Corunna, ON	Cyclohexane • 1 057.8 tonnes in 1998 • 527.12 tonnes in 1999 • decrease of 530.68 tonnes (-50.2%)	No comments provided by facility.

TABLE 4-3
FIVE FACILITIES REPORTING THE LARGEST INCREASE IN ON-SITE RELEASES FROM 1998 TO 1999 - *(ALL DATA)*

Facility	NPRI Pollutant and Reported Releases	Comments Provided by Facility
NPRI #2537 Safety-Kleen Ltd. Lambton Facility Corunna, ON	Lead (and its compounds) • 51.86 tonnes in 1998 • 2 263.6 tonnes in 1999 • increase of 2 211.74 tonnes (+4 264.9%)	The increased disposal numbers are due to variation in waste mgmt. business.
NPRI #4874 Agrium Fort Saskatchewan Nitrogen Operations Fort Saskatchewan, AB	Ammonia (total) • 870.1 tonnes in 1998 • 1 621.4 tonnes in 1999 • increase of 751.3 tonnes (+86.3%)	The increase in underground injection is due to accelerated remediation activities. The materials injected are from previous activities and are not related to the ongoing continuous operation of the Agrium facility.
NPRI #0770 Regional Municipality of Ottawa-Carleton Robert O. Pickard Environmental Centre Gloucester, ON	Nitrate ion (in solution at a pH of 6.0 or greater) • 188 tonnes in 1998 • 659 tonnes in 1999 • increase of 471 tonnes (+250.5%)	The plant is not intended to nitrify, however, nitrification does occur due to equipment/process limitations. The extent of nitrification will vary and, therefore, the nitrate concentration in the plant effluent in 1999 was 251% greater than the concentration observed in 1998. As the level of ammonia decreases, the level of nitrate increases.
NPRI #1162 Celanese Canada Inc. Edmonton Facility Edmonton, AB	Methyl ethyl ketone • 428.6 tonnes in 1998 • 896 tonnes in 1999 • increase of 467.4 tonnes (+109.1%)	Air emissions through a process vent increased in 1999. Emission reduction strategies are being evaluated. The chemical is part of a multicomponent stream and measurement variability is suspected as the cause for the change in deepwell emissions.
NPRI #3903 Petro-Canada Edmonton Refinery Edmonton, AB	Ammonia (total) • 1 546.68 tonnes in 1998 • 1 994.3 tonnes in 1999 • increase of 447.62 tonnes (+28.9%)	No comments provided by facility.

5. Off-site Transfers for Disposal in Canada

5.1 Off-site Transfers for Disposal in 1999

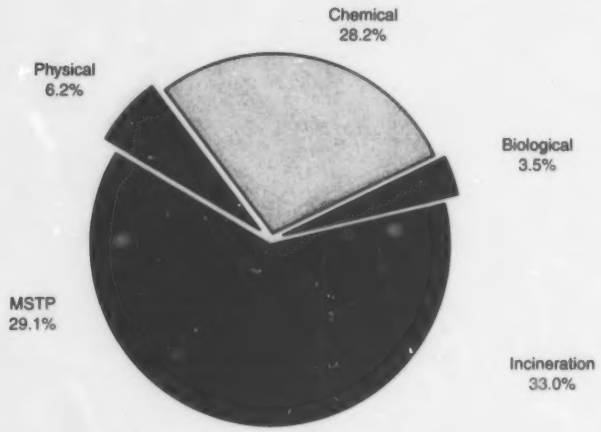
In 1999, facilities across Canada reported off-site transfers for disposal totalling 131 925 tonnes. These off-site transfers can be further categorized as those transferred for treatment prior to final disposal, which accounted for 34 646 tonnes (or 26.3% of total off-site transfers for disposal), and those transferred for final disposal, which accounted for 97 279 tonnes (or 73.7%).

Off-site transfers reported by facilities in 1999 (see Table 3-1) were:

- Off-site transfers for treatment prior to final disposal:
  - Physical - 2 165 tonnes (or 1.6% of total off-site transfers)
  - Chemical - 9 758 tonnes (or 7.4%)
  - Biological - 1 204 tonnes (or 0.9%)
  - Incineration - 11 427 tonnes (or 8.7%)
  - Municipal sewage treatment plant (MSTP) - 10 091 tonnes (or 7.7%)
- Off-site transfers for final disposal:
  - Landfill - 86 035 tonnes (or 65.2% of total off-site transfers)
  - Storage - 4 100 tonnes (or 3.1%)
  - Underground injection - 6 337 tonnes (or 4.8%)
  - Land treatment - 807 tonnes (or 0.6%)

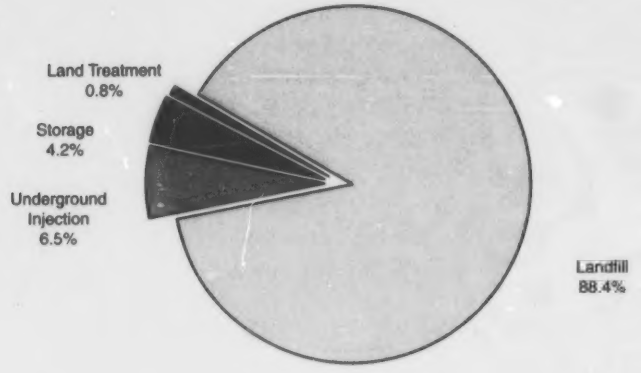
Figures 5-1 and 5-2 illustrate the relative contribution of the different categories of off-site transfers for disposal.

Figure 5-1
Off-site Transfers for Treatment Prior to Final Disposal in 1999 - *(all data)*



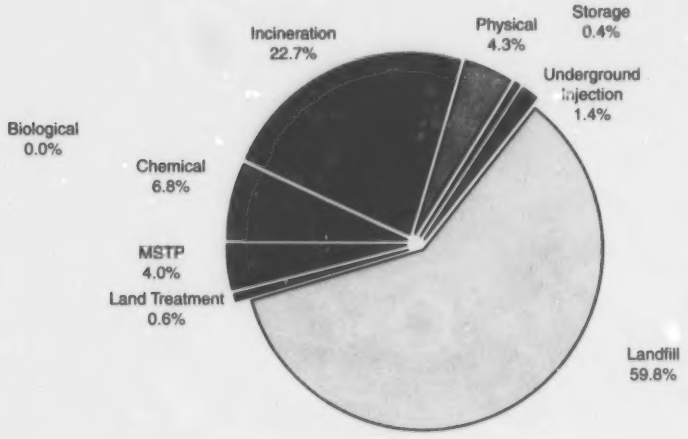
Total Off-site Transfers for Treatment: 34 646 tonnes

Figure 5-2
Off-site Transfers for Final Disposal in 1999 - *(all data)*



Total Off-site Transfers for Final Disposal: 97 280 tonnes

Figure 5-3
Off-site Transfers for Disposal of New Substances in 1999



Total Off-site Transfers for Disposal: 4 865 tonnes

Only 41 of the 73 substances added to the NPRI were reported in 1999. The new substances represented 3.7% (or 4 865 tonnes) of total off-site transfers for disposal. Of this amount, 37.8% (or 1 838 tonnes) were transferred off site for treatment prior to final disposal, and 62.2% (or 3 027 tonnes) were transferred for final disposal.

Figure 5-3 shows the breakdown of off-site transfers for disposal for the new substances reported by facilities in 1999. As is the case with off-site transfers for disposal of all reported NPRI substances, landfill also accounted for 60% of the transfers for disposal of new substances.

5.2 Off-site Transfers for Disposal in 1999 – 25 NPRI Pollutants Transferred in the Largest Quantities

Table 5-1 highlights the 25 NPRI pollutants transferred off site for disposal in the largest quantities in 1999, by category. Off-site transfers of these pollutants accounted for 96% (or 126 917 tonnes) of off-site transfers for disposal. Some 5 843 reports (or 68% of the total received) were submitted in 1999 for these 25 pollutants.

In 1999, the six pollutants transferred off site for disposal in the largest quantities were:

1. Zinc (and its compounds) - 34 498 tonnes
2. Lead (and its compounds) - 15 274 tonnes
3. Cadmium (and its compounds) - 12 130 tonnes
4. Chromium (and its compounds) - 9 884 tonnes
5. Sulphuric acid - 6 633 tonnes
6. Manganese (and its compounds) - 6 551 tonnes

By comparison, in 1998 the following pollutants were transferred off site in the largest quantities:

1. Zinc (and its compounds) - 26 285 tonnes
2. Manganese (and its compounds) - 7 380 tonnes
3. Sulphuric acid - 6 292 tonnes
4. Nitrate ion (in solution at pH ≥ 6.0) - 5 087 tonnes
5. Hydrochloric acid - 5 027 tonnes
6. Xylene (mixed isomers) - 4 824 tonnes

The notable increases in 1999 were changes in the off-site transfers for disposal of zinc, lead, cadmium and chromium, and their compounds:

- Transfers of zinc (and its compounds) rose 31%, from 26 285 tonnes in 1998 to 34 498 tonnes in 1999.
- Transfers of lead (and its compounds) increased 357% from 3 340 tonnes in 1998 to 15 274 tonnes in 1999.
- Transfers of cadmium (and its compounds) rose 6 218% from 192 tonnes in 1998 to 12 130 tonnes in 1999
- Transfers of chromium (and its compounds) increased 223% from 3 062 tonnes in 1998 to 9 884 tonnes in 1999.

All of these increases were attributable to a single facility that began reporting to the NPRI in 1999 – Philip Enterprises Inc., Philip Mill Services at Firestone (NPRI #5664). The facility provides mill services such as metal scrap management, by-products services, metallurgical testing and analysis to steel producers. As the result of a provincial order, large quantities of NPRI pollutants were transferred off site for disposal in landfills in 1999. They were contained in industrial wastes that had been stockpiled for two years.

TABLE 5-1
OFF-SITE TRANSFERS FOR DISPOSAL BY CATEGORY IN 1999 – 25 NPRI POLLUTANTS TRANSFERRED IN THE LARGEST QUANTITIES - (TONNES) - *(ALL DATA)*

CAS #	Pollutant	Physical	Chemical	Biological	Incineration	MSTP	Landfill	Storage	Underground Injection	Land Treatment	Total
N/A	Zinc (and its compounds)	111.5	1 558.7	2.7	20.1	19.5	32 450.1	209.7	90.6	35.1	34 498.1
N/A	Lead (and its compounds)	10.2	132.3	0.0	27.9	2.6	15 029.5	70.8	0.1	0.3	15 273.6
N/A	Cadmium (and its compounds)	0.3	0.1	0.0	6.0	0.1	12 123.6	0.1	0.0	0.0	12 130.2
N/A	Chromium (and its compounds)	494.9	194.3	0.0	3.9	18.8	8 770.5	104.0	297.7	0.1	9 884.2
7664-93-9	Sulphuric acid	47.8	3 648.3	0.0	83.8	802.4	369.5	44.8	1 636.1	0.0	6 632.7
N/A	Manganese (and its compounds)	143.7	198.9	1.5	1.3	12.1	5 748.2	417.8	0.0	27.0	6 550.5
1330-20-7	Xylene (mixed isomers)	129.9	142.7	0.0	1 668.8	0.1	1 895.8	1 441.3	10.7	15.8	5 305.0
67-56-1	Methanol	0.4	16.1	0.6	1 006.0	1 015.9	50.5	7.4	2 867.8	0.6	4 965.3
N/A	Nitrate ion (in solution at a pH of 6.0 or greater)	4.7	18.4	0.0	19.1	3 986.6	60.0	0.0	652.5	0.4	4 741.7
7647-01-0	Hydrochloric acid	291.9	2 346.8	0.0	15.0	1 678.2	14.5	2.0	28.4	215.0	4 591.8
108-88-3	Toluene	224.1	20.0	2.9	2 316.3	1.4	865.9	686.2	8.7	10.2	4 135.8
7789-75-5	Calcium fluoride	204.0	323.2	0.0	0.0	0.0	2 865.8	16.4	0.0	0.0	3 409.4
107-21-1	Ethylene glycol	54.9	3.9	751.0	182.1	1 295.7	127.6	52.2	244.9	0.2	2 712.5
78-93-3	Methyl ethyl ketone	35.5	88.6	36.0	915.7	56.1	328.6	240.5	10.7	0.7	1 712.4
N/A	Ammonia (total)	0.1	19.1	180.8	84.8	490.6	14.4	378.0	57.2	428.3	1 653.3
1332-21-4	Asbestos (friable form)	0.0	0.0	0.0	0.0	0.0	1 575.2	0.0	0.0	0.0	1 575.2
67-63-0	Isopropyl alcohol	0.5	3.0	84.2	1 059.2	157.7	71.8	58.3	26.9	0.2	1 461.7
N/A	Copper (and its compounds)	13.0	93.7	0.0	4.9	5.8	1 198.8	75.1	0.0	20.6	1 411.9
7697-37-2	Nitric acid	0.0	628.1	124.2	5.0	79.7	42.1	1.9	73.1	0.0	954.0
110-54-3	*n*-Hexane	0.8	2.0	0.0	843.5	5.7	0.7	0.0	3.3	0.0	855.9
N/A	Nickel (and its compounds)	151.4	63.5	0.0	1.2	3.9	405.9	36.7	22.4	0.0	685.0
7664-38-2	Phosphoric acid	11.0	77.4	0.0	0.2	37.8	464.3	0.1	0.3	0.0	591.1
71-36-3	*n*-Butyl alcohol	0.4	0.7	10.0	402.5	20.9	6.9	1.6	0.7	0.2	443.9
110-82-7	Cyclohexane	27.5	0.0	0.0	342.6	0.0	0.1	0.0	0.3	12.5	383.0
108-10-1	Methyl isobutyl ketone	1.0	0.1	0.0	181.3	0.0	100.8	75.5	0.0	0.5	359.1
Total Largest Off-site Transfers for Disposal		**1 959.4**	**9 580.0**	**1 193.9**	**9 191.2**	**9 691.6**	**84 580.9**	**3 920.4**	**6 032.1**	**767.7**	**126 917.3**
National Total - Off-site Transfers for Disposal		**2 165.2**	**9 758.2**	**1 203.9**	**11 427.2**	**10 091.1**	**86 035.4**	**4 099.6**	**6 337.1**	**807.4**	**131 925.2**
% of National Total		**90.5**	**98.2**	**99.2**	**80.4**	**96.0**	**98.3**	**95.6**	**95.2**	**95.1**	**96.2**

TABLE 5-1
OFF-SITE TRANSFERS FOR DISPOSAL BY CATEGORY IN 1999 – 25 NPRI POLLUTANTS TRANSFERRED IN THE LARGEST QUANTITIES - (TONNES) - *(ALL DATA)*

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N/A	Cadmium (and its compounds)	0.3	0.1	0.0	6.0	0.1	12 123.6	0.1	0.0	0.0	12 130.2
N/A	Chromium (and its compounds)	494.9	194.3	0.0	3.9	18.8	8 770.5	104.0	297.7	0.1	9 884.2
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N/A	Manganese (and its compounds)	143.7	198.9	1.5	1.3	12.1	5 748.2	417.8	0.0	27.0	6 550.5
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N/A	Nitrate ion (in solution at a pH of 6.0 or greater)	4.7	18.4	0.0	19.1	3 986.6	60.0	0.0	652.5	0.4	4 741.7
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78-93-3	Methyl ethyl ketone	35.5	88.6	36.0	915.7	56.1	328.6	240.5	10.7	0.7	1 712.4
N/A	Ammonia (total)	0.1	19.1	180.8	84.8	490.6	14.4	378.0	57.2	428.3	1 653.3
1332-21-4	Asbestos (friable form)	0.0	0.0	0.0	0.0	0.0	1 575.2	0.0	0.0	0.0	1 575.2
67-63-0	Isopropyl alcohol	0.5	3.0	84.2	1 059.2	157.7	71.8	58.3	26.9	0.2	1 461.7
N/A	Copper (and its compounds)	13.0	93.7	0.0	4.9	5.8	1 198.8	75.1	0.0	20.6	1 411.9
7697-37-2	Nitric acid	0.0	628.1	124.2	5.0	79.7	42.1	1.9	73.1	0.0	954.0
110-54-3	*n*-Hexane	0.8	2.0	0.0	843.5	5.7	0.7	0.0	3.3	0.0	855.9
N/A	Nickel (and its compounds)	151.4	63.5	0.0	1.2	3.9	405.9	36.7	22.4	0.0	685.0
7664-38-2	Phosphoric acid	11.0	77.4	0.0	0.2	37.8	464.3	0.1	0.3	0.0	591.1
71-36-3	*n*-Butyl alcohol	0.4	0.7	10.0	402.5	20.9	6.9	1.6	0.7	0.2	443.9
110-82-7	Cyclohexane	27.5	0.0	0.0	342.6	0.0	0.1	0.0	0.3	12.5	383.0
108-10-1	Methyl isobutyl ketone	1.0	0.1	0.0	181.3	0.0	100.8	75.5	0.0	0.5	359.1
Total Largest Off-site Transfers for Disposal		1 959.4	9 580.0	1 193.9	9 191.2	9 691.6	84 580.9	3 920.4	6 032.1	767.7	126 917.3
National Total - Off-site Transfers for Disposal		2 165.2	9 758.2	1 203.9	11 427.2	10 091.1	86 035.4	4 099.6	6 337.1	807.4	131 925.2
% of National Total		90.5	98.2	99.2	80.4	96.0	98.3	95.6	95.2	95.1	96.2

5.3 Off-site Transfers for Disposal by Industrial Sector in 1999

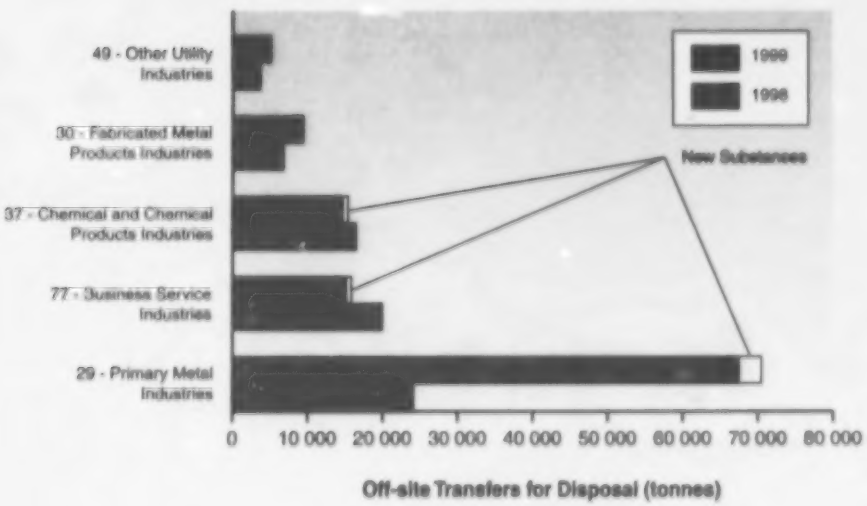
In 1999, the five industrial sectors reporting the largest off-site transfers for disposal accounted for 88% (or 115 475 tonnes) of total off-site transfers for disposal. They were:

1. SIC 29 - Primary Metal Industries - 70 342 tonnes
2. SIC 77 - Business Service Industries - 15 697 tonnes
3. SIC 37 - Chemical and Chemical Products Industries - 15 233 tonnes
4. SIC 30 - Fabricated Metal Products Industries - excluding machinery and transportation equipment industries - 9 265 tonnes
5. SIC 49 - Other Utility Industries - 4 939 tonnes

These five industrial sectors also reported the largest off-site transfers for disposal in 1998, ranked in the same order.

Figure 5-4 highlights these five sectors with their 1998 and 1999 reported off-site transfers for disposal. The chart also shows the portion of the transfers attributed to the new substances reported in 1999.

Figure 5-4
Five Industrial Sectors Reporting the Largest Off-site Transfers for Disposal in 1998 and 1999 - *(all data)*



In 1999, the 'primary metal industries' sector reported the largest off-site transfers for disposal with 70 342 tonnes, of which 2 993 tonnes were attributable to the newly-added substances. Off-site transfers of zinc, lead, cadmium and chromium (and their compounds) also rose in 1999 to 27 148, 14 261, 12 045 and 8 126 tonnes respectively, from 14 779, 1 734, 104, and 1 270 tonnes in 1998. As noted in section 5.2, these increases were attributable to a single facility that began reporting to the NPRI in 1999.

The 'business service industries' sector reported the second-largest off-site transfers for disposal with 15 697 tonnes in 1999, of which 532 tonnes were new substances.

Ranked third was the 'chemical and chemical products industries' sector, reporting 15 233 tonnes transferred off site for disposal in 1999, of which 530 tonnes were attributable to new substances.

The 'fabricated metal products industries' sector ranked fourth, with 9 265 tonnes transferred off site for disposal in 1999, of which 75 tonnes were transfers of new substances.

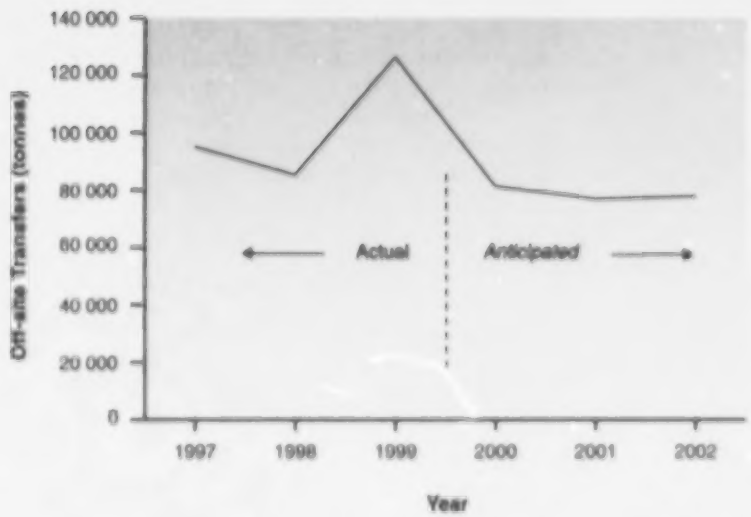
The 'other utility industries' sector ranked fifth, with 4 939 tonnes transferred off site for disposal in 1999, of which 25 tonnes were attributable to new substances.

5.4 Anticipated Off-site Transfers for Disposal (2000-2002)

As outlined in section 4.4, facilities were required to provide projected estimates for off-site transfers for disposal for the 2000-2002 period.

Figure 5-5 shows reported off-site transfers for disposal for 1997, 1998, 1999 and projected amounts for 2000 through 2002, as reported in 1999, for matched data only (see definition of matched data in section 3.3).

Figure 5-5
Actual and Anticipated Off-site Transfers for Disposal (1997-2002) - *(matched data)*

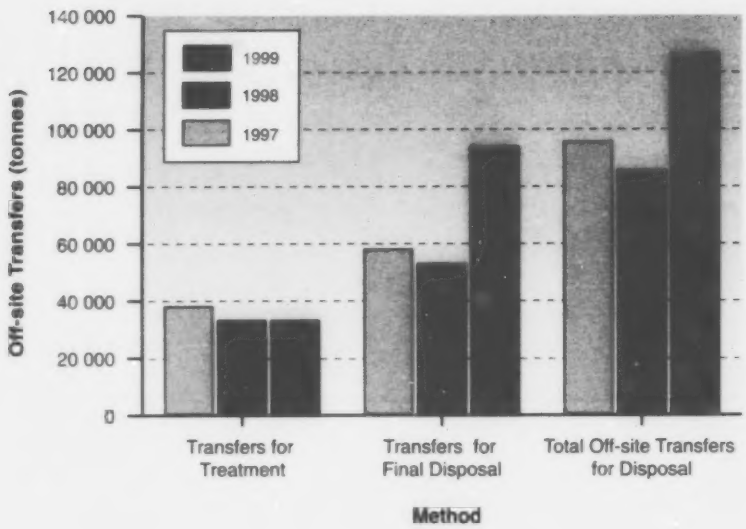


5.5 Trends in Off-site Transfers for Disposal (1997-1999)

For reasons noted in section 4.5, an analysis based on the matched data set was performed. For 1999, the matched data set represented:

- 93.3% of 2 190 facilities reporting to the NPRI
- 86.1% of 8 595 pollutant reports
- 76.2% of 172 substances for which a report was submitted to the NPRI
- 95.7% of total off-site transfers reported (131 925 tonnes)

Figure 5-6
Trends in Off-site Transfers for Disposal (1997-1999) - *(matched data)*



For matched data, the following trends can be observed (Figure 5-6):

- In 1999, total off-site transfers for disposal in Canada were 126 278 tonnes, 48% higher than in 1998. Off-site transfers for treatment prior to final disposal were the same in 1998 and 1999, while transfers for final disposal increased 78%. As explained in section 5.2, this increase was attributable to a single facility that began reporting to the NPRI in 1999.
- In 1998, total off-site transfers for disposal were 85 258 tonnes, a decrease of 10.4% compared to 1997. Off-site transfers for treatment prior to final disposal and transfers for final disposal were respectively 13% and 8.7% lower in 1998 than in 1997.
- Over a three-year period, total off-site transfers for disposal in Canada rose 33%, from 95 141 tonnes in 1997 to 126 278 tonnes in 1999. Transfers for treatment prior to final disposal were 13% lower in 1999 than in 1997, while transfers for final disposal increased 63%.

Highlights of total off-site transfers for disposal from Table 3-2 follow:

- Transfers for physical treatment were 1 938 tonnes in 1999, a decrease of 14% from 1998 and 44% from 1997.
- Transfers for chemical treatment and biological treatment were respectively 9 424 tonnes and 1 200 tonnes in 1999, 9% higher than in 1998, but still below the 1997 levels.
- Transfers for incineration were 10 295 tonnes in 1999, a decrease of 10% from 1998 and 15% from 1997.
- Transfers to MSTPs were 9 884 tonnes in 1999, in the same range as in the previous two years.
- Transfers to landfill were 82 490 tonnes in 1999, 68% higher than in 1997.
- Transfers to storage were 4 033 tonnes in 1999, in the same range as in 1997.
- Transfers to underground by means of injection were 6 271 tonnes, an increase of 44% from both 1998 and 1997.
- Transfers to land treatment were 744 tonnes in 1999, 264% higher than in 1997.

5.6 Off-site Transfers for Disposal by Facility in 1999

Off-site transfer information from facilities reporting to the NPRI is shown in Tables 5-2 and 5-3. This facility listing was based on the largest change in off-site transfers by specific pollutant reported to the NPRI from 1998 to 1999. These facilities reported actual changes in off-site transfers, as compared to changes attributable to improved methodologies used in estimating these transfers.

TABLE 5-2
FIVE FACILITIES REPORTING THE LARGEST DECREASE IN OFF-SITE TRANSFERS FOR DISPOSAL FROM 1998 TO 1999 - *(ALL DATA)*

Facility	NPRI Pollutant and Reported Transfers	Comments Provided by Facility
NPRI #1928 Philip Enterprises Inc. Yard 3 Facility Hamilton, ON	Zinc (and its compounds) • 6 082.82 tonnes in 1998 • 2 420.57 tonnes in 1999 • decrease of 3 662.25 tonnes (-60.2%)	No comments provided by facility.
NPRI #3824 Co-Steel Lasco Whitby, ON	Zinc (and its compounds) • 4 827 tonnes in 1998 • 2 428 tonnes in 1999 • decrease of 2 399 tonnes (-49.7%)	No comments provided by facility.
NPRI #1928 Philip Enterprises Inc Yard 3 Facility Hamilton, ON	Manganese (and its compounds) • 1 653.35 tonnes in 1998 • 528.91 tonnes in 1999 • decrease of 1 124.44 tonnes (-68%)	No comments provided by facility.
NPRI #1495 Dominion Color Company Ajax Plant Ajax, ON	Nitrate ion (in solution at a pH of 6.0 or greater) • 3 616 tonnes in 1998 • 2 952 tonnes in 1999 • decrease of 664 tonnes (-18.4%)	No comments provided by facility.
NPRI #5645 Philip Enterprises Inc. Parkdale Avenue Facility Hamilton, ON	Zinc (and its compounds) • 2 383.57 tonnes in 1998 • 1 763.9 tonnes in 1999 • decrease of 619.67 tonnes (-26%)	No comments provided by facility.

TABLE 5-3
FIVE FACILITIES REPORTING THE LARGEST INCREASE IN OFF-SITE TRANSFERS FOR DISPOSAL FROM 1998 TO 1999 - *(ALL DATA)*

Facility	NPRI Pollutant and Reported Transfers	Comments Provided by Facility
NPRI #1427 Hudson General Aviation Services Inc. Mississauga, ON	Ethylene glycol • 199.37 tonnes in 1998 • 1 126.92 tonnes in 1999 • increase of 927.55 tonnes (+465.2%)	No comments provided by facility.
NPRI #0444 Inco Limited Copper Cliff Smelter Complex Copper Cliff, ON	Chromium (and its compounds) • 0 tonnes in 1998 • 920 tonnes in 1999 • increase of 920 tonnes	No comments provided by facility.
NPRI #5239 AEC Oil & Gas Hythe Brainard Gas Plant Hythe, AB	Methanol • 123.2 tonnes in 1998 • 670.75 tonnes in 1999 • increase of 547.55 tonnes (+444.4%)	The methanol injection that occurs in the field is seperated into the produced water at the plant. This amount of methanol injected in the field can vary, based on the field gas flow, ambient temperature fluctuations, operational concerns and the age of the field (as the field increases in age the number of hydrates can increase resulting in an increase in the methanol injection).
NPRI #4627 Philip Services Corp. Windsor Facility Windsor, ON	Xylene (mixed isomers) • 97.68 tonnes in 1998 • 607.91 tonnes in 1999 • increase of 510.22 tonnes (+522.3%)	No comments provided by facility.
NPRI #3855 Lake Erie Steel Company Nanticoke, ON	Zinc (and its compounds) • 0 tonnes in 1998 • 478.4 tonnes in 1999 • increase of 478.4 tonnes	No comments provided by facility.

6. Off-site Transfers for Recycling and Energy Recovery in Canada

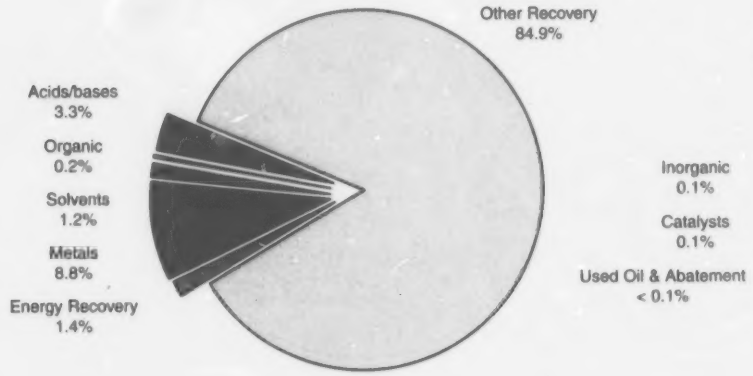
6.1 Off-site Transfers for Recycling and Energy Recovery in 1999

In 1999, facilities across Canada reported off-site transfers for recycling and energy recovery totalling 1 080 951 tonnes. Facilities categorized these transfers as:

- Energy recovery - 14 740 tonnes (or 1.4% of transfers for recycling and energy recovery)
- Solvents - 13 282 tonnes (or 1.2%)
- Organic substances - 1 663 tonnes (or 0.2%)
- Metals and metal compounds - 94 818 tonnes (or 8.8%)
- Inorganic materials - 1 581 tonnes (or 0.1%)
- Acids or bases - 35 406 tonnes (or 3.3%)
- Catalysts - 960 tonnes (or 0.1%)
- Pollution-abatement residues - 395 tonnes (or less than 0.1%)
- Used oil - 27 tonnes (or less than 0.1%)
- Other recovery, reuse and recycling activities - 918 078 tonnes (or 84.9%)

The broad category 'other recovery, reuse and recycling' accounted for 85% of off-site transfers for recycling and energy recovery as shown in Figure 6-1.

Figure 6-1
Off-site Transfers for Recycling and Energy Recovery in 1999 - *(all data)*



Total Off-site Transfers for Recycling and Energy Recovery: 1 080 951 tonnes

The new substances reported in 1999 represented 83.8% (or 905 511 tonnes) of the total off-site transfers for recycling and energy recovery. One new substance, hydrogen sulphide, accounted for 99.9% (or 904 874 tonnes) of reported recycling and energy recovery of new substances and was included in the broad category 'other recovery, reuse and recycling'. All hydrogen sulphide reported was transferred off site for recycling by three Westcoast Energy Inc. facilities – Ft. Nelson Gas Plant (NPRI #4304), McMahon Gas Plant (NPRI #4305) and Pine River Gas Plant (NPRI #4306).

As explained in section 4.2, hydrogen sulphide must be removed from raw natural gas, before the gas can be safely transported to markets. In 1999, H_2S contents in the raw natural gas processed at these Westcoast Energy facilities varied from 1% to 11%. The acid gas stream, from the removal process, contains primarily H_2S and CO_2, and may be flared, injected into an underground reservoir or processed to recover elemental sulphur, as done at the facilities mentioned.

6.2 Off-site Transfers for Recycling and Energy Recovery in 1999 – 25 NPRI Substances Transferred in the Largest Quantities

Table 6-1 highlights the 25 NPRI substances transferred off site for recycling in the largest quantities in 1999, by category. Off-site transfers of these substances represented 99.7% (or 1 077 242 tonnes) of transfers for recycling and energy recovery. There were 5 795 reports (or 67% of the total received) submitted in 1999 for these 25 substances.

In 1999, the six substances transferred off site for recycling and energy recovery in the largest quantities were:

1. Hydrogen sulphide - 904 874 tonnes
2. Sulphuric acid - 38 375 tonnes
3. Copper (and its compounds) - 32 650 tonnes
4. Zinc (and its compounds) - 30 144 tonnes
5. Lead (and its compounds) - 12 901 tonnes
6. Manganese (and its compounds) - 10 678 tonnes

As outlined in section 6.1, hydrogen sulphide was added to the NPRI for 1999.

By comparison, in 1998 the following substances were transferred off site for recycling in the largest quantities:

1. Sulphuric acid - 62 251 tonnes
2. Zinc (and its compounds) - 40 048 tonnes
3. Copper (and its compounds) - 23 230 tonnes
4. Manganese (and its compounds) - 21 286 tonnes
5. Lead (and its compounds) - 15 366 tonnes
6. Chromium (and its compounds) - 10 763 tonnes

The notable changes in 1999 were the off-site transfers for recycling and energy recovery of sulphuric acid, zinc, copper, and manganese and their compounds:

- Transfers of copper (and its compounds) rose 41% (or 9 420 tonnes); 55% of the increase was attributable to one facility that began reporting to the NPRI in 1999 – Corporation minière Inmet, Mine Troilus (NPRI #5464).
- Transfers of sulphuric acid fell 38% (or -23 876 tonnes) in 1999; 91% of this decrease was due to two facilities that stopped recycling sulphuric acid – Petro-Canada, Raffinerie de Montréal (NPRI #3897) and Petro-Canada, Oakville Refinery (NPRI #3901).
- Transfers of manganese (and its compounds) dropped by 50% (or -10 608 tonnes) in 1999; more than a dozen facilities reduced or eliminated recycling of manganese.
- Transfers of zinc (and its compounds) decreased 25% (or -9 904 tonnes) in 1999; one facility reduced recycling of zinc by 10 679 tonnes – Magna-Cosma, Presstran Industries (NPRI #2683).

TABLE 6-1
OFF-SITE TRANSFERS FOR RECYCLING AND ENERGY RECOVERY BY CATEGORY IN 1999 – 25 NPRI SUBSTANCES TRANSFERRED IN THE LARGEST QUANITITES - (TONNES) - *(ALL DATA)*

CAS #	Substance	Energy Recovery	Solvents	Organics	Metals	Inorganics	Acids or Bases	Pollution Abatement Catalysts	Pollution Abatement Residues	Used Oil	Other	Total
7783-06-4	Hydrogen sulphide	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	904 874.0	904 874.4
7664-93-9	Sulphuric acid	0.0	0.0	0.0	361.0	0.0	34 421.3	0.0	0.0	0.0	3 593.0	38 375.3
N/A	Copper (and its compounds)	0.5	0.0	0.0	30 528.9	75.7	0.5	0.0	33.5	0.0	2 010.4	32 649.5
N/A	Zinc (and its compounds)	14.1	0.0	5.2	27 515.6	19.7	0.0	0.0	206.3	22.0	2 360.7	30 143.7
N/A	Lead (and its compounds)	18.9	0.0	0.0	12 144.1	4.5	0.0	0.0	26.7	0.0	706.4	12 900.6
N/A	Manganese (and its compounds)	2.3	0.0	82.3	9 668.1	37.6	0.0	0.0	99.0	0.0	788.9	10 678.3
1330-20-7	Xylene (mixed isomers)	6 027.4	4 112.1	15.5	0.0	0.0	0.0	0.0	0.0	0.8	465.4	10 621.2
108-88-3	Toluene	3 764.6	3 247.1	96.1	0.0	0.0	0.0	0.0	0.0	0.5	30.8	7 139.0
N/A	Chromium (and its compounds)	0.7	0.0	0.0	4 697.4	565.6	0.0	0.0	5.0	0.0	269.8	5 538.5
N/A	Nickel (and its compounds)	0.0	0.0	0.0	3 914.8	8.4	0.0	301.8	4.4	0.2	101.5	4 331.0
78-93-3	Methyl ethyl ketone	1 270.1	2 498.2	6.1	0.0	0.0	0.0	0.0	0.0	0.0	40.7	3 815.1
7429-90-5	Aluminum (fume or dust)	0.0	0.0	0.0	3 137.1	0.0	0.0	0.0	0.0	0.0	131.7	3 268.8
67-63-0	Isopropyl alcohol	515.0	1 133.9	2.3	0.0	0.0	113.0	0.0	0.0	0.0	7.8	1 771.9
107-21-1	Ethylene glycol	240.3	16.5	902.0	0.0	5.9	0.0	0.0	0.0	1.4	403.5	1 569.5
N/A	Ammonia (total)	3.2	0.0	5.1	16.9	473.6	0.0	0.0	15.3	0.0	984.7	1 498.8
7647-01-0	Hydrochloric acid	0.0	0.0	0.0	518.3	30.0	0.0	0.0	0.0	0.0	727.3	1 275.6
108-10-1	Methyl isobutyl ketone	401.0	729.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1 130.1
7664-38-2	Phosphoric acid	0.0	54.0	0.0	0.0	0.0	860.5	174.6	0.0	0.0	1.7	1 090.8
67-56-1	Methanol	637.7	346.3	2.2	0.0	0.0	0.0	0.0	0.0	0.6	24.3	1 010.9
N/A	Arsenic (and its compounds)	0.0	0.0	0.0	632.3	62.8	0.0	0.0	1.6	0.0	11.9	708.5
100-41-4	Ethylbenzene	371.6	281.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	2.9	656.2
1313-27-5	Molybdenum trioxide	0.0	0.0	0.0	174.2	0.0	0.0	452.0	0.0	0.0	0.2	626.4
7440-62-2	Vanadium (fume or dust)	0.0	0.0	0.0	603.5	0.0	0.0	0.0	0.0	0.0	2.6	606.0
75-09-2	Dichloromethane	405.6	121.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	527.5
108-95-2	Phenol (and its salts)	3.6	0.0	415.3	0.0	0.0	0.0	0.0	0.0	0.0	15.2	434.1
Total Largest Off-site Transfers for Recycling		13 676.6	12 540.3	1 532.3	93 912.0	1 283.9	35 395.3	928.4	392.3	25.3	917 555.3	1 077 241.9
National Total - Off-site Transfers for Recycling		14 740.3	13 282.2	1 663.1	94 817.7	1 581.3	35 405.8	960.5	394.9	26.8	918 078.0	1 080 950.8
% of National Total		92.8	94.4	92.1	99.0	81.2	100.0	96.7	99.3	94.5	99.9	99.7

TABLE 6-1
OFF-SITE TRANSFERS FOR RECYCLING AND ENERGY RECOVERY BY CATEGORY IN 1999 – 25 NPRI SUBSTANCES TRANSFERRED IN THE LARGEST QUANITITES - (TONNES) - *(ALL DATA)*

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N/A	Copper (and its compounds)	0.5	0.0	0.0	30 528.9	75.7	0.5	0.0	33.5	0.0	2 010.4	32 649.5
N/A	Zinc (and its compounds)	14.1	0.0	5.2	27 515.6	19.7	0.0	0.0	206.3	22.0	2 380.7	30 143.7
N/A	Lead (and its compounds)	18.9	0.0	0.0	12 144.1	4.5	0.0	0.0	26.7	0.0	706.4	12 900.6
N/A	Manganese (and its compounds)	2.3	0.0	82.3	9 668.1	37.6	0.0	0.0	99.0	0.0	788.9	10 678.3
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108-88-3	Toluene	3 764.6	3 247.1	96.1	0.0	0.0	0.0	0.0	0.0	0.5	30.8	7 139.0
N/A	Chromium (and its compounds)	0.7	0.0	0.0	4 697.4	565.6	0.0	0.0	5.0	0.0	269.8	5 538.5
N/A	Nickel (and its compounds)	0.0	0.0	0.0	3 914.8	8.4	0.0	391.8	4.4	0.2	101.5	4 331.0
78-93-3	Methyl ethyl ketone	1 270.1	2 498.2	6.1	0.0	0.0	0.0	0.0	0.0	0.0	40.7	3 815.1
7429-90-5	Aluminum (fume or dust)	0.0	0.0	0.0	3 137.1	0.0	0.0	0.0	0.0	0.0	131.7	3 268.8
67-63-0	Isopropyl alcohol	515.0	1 133.9	2.3	0.0	0.0	113.0	0.0	0.0	0.0	7.8	1 771.9
107-21-1	Ethylene glycol	240.3	16.5	902.0	0.0	5.9	0.0	0.0	0.0	1.4	403.5	1 569.5
N/A	Ammonia (total)	3.2	0.0	5.1	16.9	473.6	0.0	0.0	15.3	0.0	984.7	1 498.8
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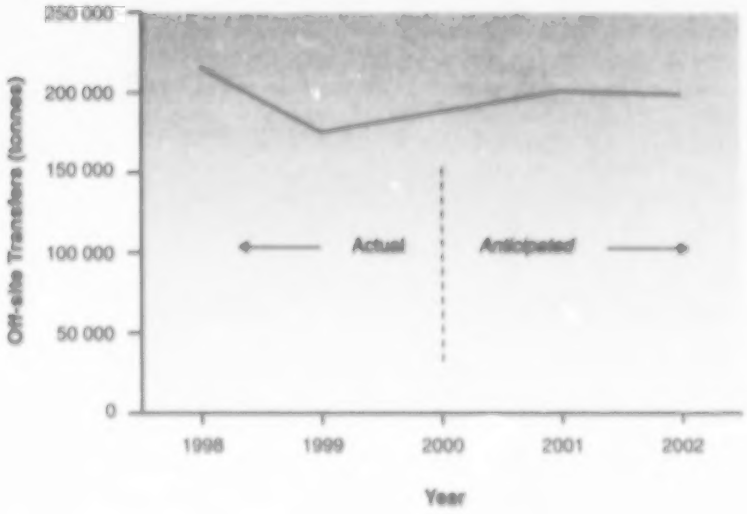
108-10-1	Methyl isobutyl ketone	401.0	729.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1 130.1
7664-38-2	Phosphoric acid	0.0	54.0	0.0	0.0	0.0	860.5	174.6	0.0	0.0	1.7	1 090.8
67-56-1	Methanol	637.7	346.3	2.2	0.0	0.0	0.0	0.0	0.0	0.6	24.3	1 010.9
N/A	Arsenic (and its compounds)	0.0	0.0	0.0	632.3	62.8	0.0	0.0	1.6	0.0	11.9	708.5
100-41-4	Ethylbenzene	371.6	281.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	2.9	656.2
1313-27-5	Molybdenum trioxide	0.0	0.0	0.0	174.2	0.0	0.0	452.0	0.0	0.0	0.2	626.4
7440-62-2	Vanadium (fume or dust)	0.0	0.0	0.0	603.5	0.0	0.0	0.0	0.0	0.0	2.6	606.0
75-09-2	Dichloromethane	405.6	121.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	527.5
108-95-2	Phenol (and its salts)	3.6	0.0	415.3	0.0	0.0	0.0	0.0	0.0	0.0	15.2	434.1
Total Largest Off-site Transfers for Recycling		13 676.6	12 540.3	1 532.3	93 912.0	1 283.9	35 395.3	928.4	392.3	25.3	917 555.3	1 077 241.9
National Total - Off-site Transfers for Recycling		14 740.3	13 282.2	1 663.1	94 817.7	1 581.3	35 405.8	960.5	394.9	26.8	918 078.0	1 080 950.8
% of National Total		92.8	94.4	92.1	99.0	81.2	100.0	96.7	99.3	94.5	99.9	99.7

6.3 Anticipated Off-site Transfers for Recycling and Energy Recovery (2000-2002)

As described in section 4.4, facilities were required to provide projected estimates for off-site transfers for recycling and energy recovery for 2000-2002.

Figure 6-2 shows reported off-site transfers for recycling and energy recovery for 1998, 1999 and projected amounts for 2000 through 2002, as reported in 1999, for matched data only (see definition of matched data in section 3.3).

Figure 6-2
Actual and Anticipated Off-site Transfers for Recycling and Energy Recovery (1998-2002) - *(matched data)*



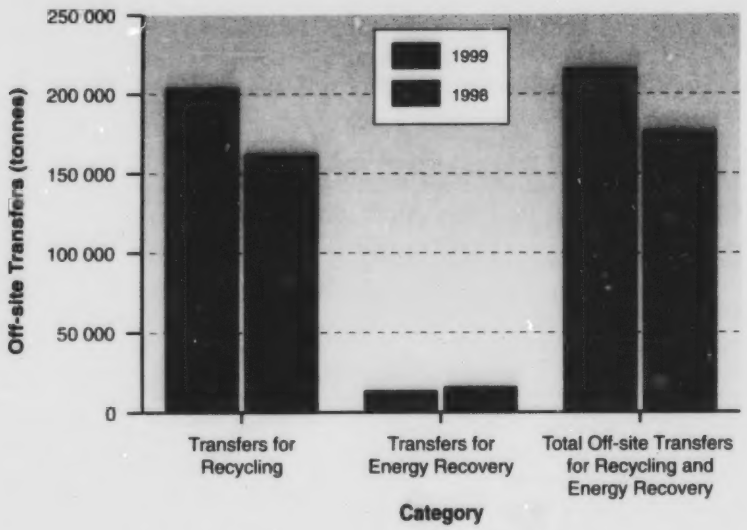
6.4 Changes in Off-site Transfers for Recycling and Energy Recovery (1998-1999)

Beginning in 1998, reporting of recycling and energy recovery activities was mandatory. Before that, it was optional; therefore, the 1997 data set presented an incomplete picture of recycling and energy-recovery activities in Canada.

For the reasons outlined above and in section 4.5, an analysis based on the matched data set was performed for 1998 and 1999. For 1999, the matched data represented:

- 93.3% of 2 190 facilities reporting to the NPRI
- 86.1% of 8 595 pollutant reports
- 76.2% of 172 substances for which a report was submitted to the NPRI
- 16.2% of the total off-site transfers for recycling and energy recovery reported (175 268 tonnes)

Figure 6-3
Changes in Off-site Transfers for Recycling and Energy Recovery (1998-1999) - *(matched data)*



The following changes can be observed from Figure 6-3:

- In 1999, total off-site transfers for recycling and energy recovery in Canada amounted to 39 953 tonnes (or 18.6%) lower than in the previous year.
- Transfers for recycling were 160 615 tonnes in 1999, down 20.8% from 1998, while transfers for energy recovery increased 18.6% to 14 653 tonnes.

F2

7. NPRI-listed, *CEPA*-toxic and Carcinogenic Pollutants in Canada

7.1 Number of Reporting Facilities and Pollutant Reports in 1999

There were 48 *CEPA*-toxic and carcinogenic substances on the 1999 NPRI List of Substances (see Table 7-1). Twenty of these substances were among the 73 added to the NPRI for 1999. They include:

- ozone-depleting substances, such as chlorofluorocarbons (CFCs) hydrochlorofluorocarbons (HCFCs) and halons
- short-chain chlorinated paraffins used mainly in metal working
- inorganic fluorides
- 3,3'-dichlorobenzidine dihydrochloride, a suspected carcinogen, used to make pigments, and
- tetraethyl lead, still used in aviation gasoline in Canada.

Several *CEPA*-toxic and carcinogenic substances are groups rather than single substances, such as arsenic (and its compounds), nickel (and its compounds) and mercury (and its compounds). In the majority of cases, the most commonly-released forms of these compounds were determined to be toxic under *CEPA* as a result of a priority substance assessment.

In previous years, chromium (and its compounds) were included in the NPRI list of *CEPA*-toxic and carcinogenic substances. It is not included this year. The NPRI listing of "chromium (and its compounds)" includes all forms of chromium, including hexavalent chromium and other non-toxic forms such as trivalent chromium.

While hexavalent chromium is toxic, and listed on Schedule 1 of *CEPA*, the most common form of chromium is trivalent chromium, which is neither *CEPA*-toxic nor carcinogenic as defined by the IARC (see section 2.5). Trivalent chromium may be converted, under some conditions, to hexavalent chromium. Because the NPRI has no means of identifying which chromium compounds are released, all reported releases of chromium (and its compounds) have been excluded from the NPRI list of *CEPA*-toxic and carcinogenic substances for the analyses in this section of the report. The NPRI is considering listing hexavalent chromium as a separate substance so data can be gathered on this *CEPA*-toxic substance.

In 1999, 859 facilities reported releases or transfers of 41 *CEPA*-toxic and carcinogenic pollutants, and 1 286 pollutant reports were submitted, as shown in Table 7-2.

Table 7-3 illustrates the three-year 'matched data' set, which selects the facilities that submitted reports on a common core of 28 substances in 1997, 1998 and 1999.

TABLE 7-1
LIST OF *CEPA*-TOXIC AND CARCINOGENIC POLLUTANTS IN THE NPRI FOR 1999

CAS #	Pollutant	*CEPA*-toxic	IARC*	ARET
75-07-0	Acetaldehyde	Y		B3
107-02-8	**Acrolein**	Y		**B3**
79-06-1	Acrylamide	Y	2A	B3
107-13-1	**Acrylonitrile**	Y		**B3**
N/A	Arsenic (and its compounds)	Y	1	
1332-21-4	**Asbestos (friable form)**	Y	1	**B2**
71-43-2	Benzene	Y	1	B3
100-44-7	**Benzyl chloride**		**2A**	**B2**
117-81-7	*Bis*(2-ethylhexyl) phthalate	Y		B1
106-99-0	**1,3-Butadiene**	Y	2A	**B3**
N/A	Cadmium (and its compounds)	Y	1	
7789-75-5	**Calcium fluoride**	**Y**		
56-23-5	Carbon tetrachloride	Y		B2
612-83-9	**3,3'-Dichlorobenzidine dihydrochloride**	**Y**		
107-06-2	1,2-Dichloroethane	Y		B2
75-09-2	**Dichloromethane**	Y		**B2**
64-67-5	Diethyl sulphate		2A	
77-78-1	**Dimethyl sulphate**		**2A**	
106-89-8	Epichlorohydrin		2A	B3
75-21-8	**Ethylene oxide**		1	**B2**
50-00-0	Formaldehyde		2A	B3
7664-39-3	**Hydrogen fluoride**	Y		
N/A	Lead (and its compounds)	Y		
N/A	**Mercury (and its compounds)**	Y		
N/A	Nickel (and its compounds)	Y	1	
101-14-4	*p,p'*-Methylene*bis*(2-chloroaniline)		2A	A1
7681-49-4	**Sodium fluoride**	**Y**		
96-09-3	Styrene oxide		2A	
2551-62-4	**Sulphur hexafluoride**	**Y**		
127-18-4	Tetrachloroethylene	Y	2A	B2
78-00-2	**Tetraethyl lead**	**Y**		**B1**
79-01-6	Trichloroethylene	Y	2A	B3
75-01-4	Vinyl chloride	Y	1	
	Polychlorinated Alkanes			
85535-84-8	**Alkanes, C_{10-13}, chloro**	**Y**		
68920-70-7	**Alkanes, C_{6-18}, chloro**	**Y**	**2A**	
	CFCs (Chlorofluorocarbons) and HCFCs (Hydrochlorofluorocarbons)			
75-69-4	**CFC-11**	**Y**		
76-14-2	**CFC-114**	**Y**		
76-15-3	**CFC-115**	**Y**		
75-71-8	**CFC-12**	**Y**		
75-72-9	**CFC-13**	**Y**		
41834-16-6	**HCFC-122 and all isomers**	**Y**		
34077-87-7	**HCFC-123 and all isomers**	**Y**		
63938-10-3	**HCFC-124 and all isomers**	**Y**		
1717-00-6	**HCFC-141b**	**Y**		
75-68-3	**HCFC-142b**	**Y**		
75-45-6	**HCFC-22**	**Y**		
	Halons			
353-59-3	**Halon 1211**	**Y**		
75-63-8	**Halon 1301**	**Y**		

* Carcinogens classified as Carcinogenic (1) or Probably Carcinogenic (2A) to humans by the International Agency for Research on Cancer (IARC).

Note: Substances added to the NPRI for 1999 appear in bold lettering.

TABLE 7-2
NATIONAL SUMMARY OF NPRI-LISTED, *CEPA*-TOXIC AND CARCINOGENIC POLLUTANTS IN 1999 - *(ALL DATA)*

	1999 All Substances	1999 New Substances	% Attributable to New Substances
Total Facilities	**859**	**74**	**8.6**
Total Reports	**1 286**	**98**	**7.6**
Pollutants Reported	**41**	**16**	**39.0**
On-site Releases (tonnes):			
Air	13 040.765	1 158.381	8.9
Water	**119.588**	**2.526**	**2.1**
Land	18 356.505	13 197.983	71.9
Underground Injection	**97.769**	**0.000**	**0.0**
Total On-site Releases	**31 638.560**	**14 361.087**	**45.4**
Off-site Transfers for Treatment Prior to Final Disposal (tonnes):			
Physical	400.885	204.911	51.1
Chemical	**625.336**	**323.200**	**51.7**
Biological	2.445	0.000	0.0
Incineration	**717.928**	**12.500**	**1.7**
MSTP	120.627	52.900	43.9
Total Off-site Treatment	**1 867.221**	**593.511**	**31.8**
Off-site Transfers for Final Disposal (tonnes):			
Landfill	32 446.168	2 874.538	8.9
Storage	**205.526**	**16.409**	**8.0**
Underground Injection	26.674	0.000	0.0
Land Treatment	**5.806**	**0.000**	**0.0**
Total Off-site Final Disposal	**32 684.174**	**2 890.947**	**8.8**
Total Off-site Transfers for Disposal	**34 551.395**	**3 484.458**	**10.1**
Off-site Transfers for Recycling (tonnes):			
Recycling	18 905.231	342.726	1.8
Energy Recovery	**825.821**	**0.000**	**0.0**
Total Off-site Transfers for Recycling	**19 731.052**	**342.726**	**1.7**

Note: Because of rounding of on-site release and off-site transfer quantities, the totals may not equal the sum of the individual values.

TABLE 7-1
LIST OF *CEPA*-TOXIC AND CARCINOGENIC POLLUTANTS IN THE NPRI FOR 1999

CAS #	Pollutant	*CEPA*-toxic	IARC*	ARET
75-07-0	Acetaldehyde	Y		B3
107-02-8	**Acrolein**	**Y**		**B3**
79-06-1	Acrylamide	Y	2A	B3
107-13-1	**Acrylonitrile**	**Y**		**B3**
N/A	Arsenic (and its compounds)	Y	1	
1332-21-4	**Asbestos (friable form)**	**Y**	**1**	**B2**
71-43-2	Benzene	Y	1	B3
100-44-7	**Benzyl chloride**		**2A**	**B2**
117-81-7	*Bis*(2-ethylhexyl) phthalate	Y		B1
106-99-0	**1,3-Butadiene**	**Y**	**2A**	**B3**
N/A	Cadmium (and its compounds)	Y	1	
7789-75-5	**Calcium fluoride**	**Y**		
56-23-5	Carbon tetrachloride	Y		B2
612-83-9	**3,3'-Dichlorobenzidine dihydrochloride**	**Y**		
107-06-2	1,2-Dichloroethane	Y		B2
75-09-2	**Dichloromethane**	**Y**		**B2**
64-67-5	Diethyl sulphate		2A	
77-78-1	**Dimethyl sulphate**		**2A**	
106-89-8	Epichlorohydrin		2A	B3
75-21-8	**Ethylene oxide**		**1**	**B2**
50-00-0	Formaldehyde		2A	B3
7664-39-3	**Hydrogen fluoride**	**Y**		
N/A	Lead (and its compounds)	Y		
N/A	**Mercury (and its compounds)**	**Y**		
N/A	Nickel (and its compounds)	Y	1	
101-14-4	***p,p'*-Methylenebis(2-chloroaniline)**		**2A**	**A1**
7681-49-4	**Sodium fluoride**	**Y**		
96-09-3	**Styrene oxide**		**2A**	
2551-62-4	**Sulphur hexafluoride**	**Y**		
127-18-4	**Tetrachloroethylene**	**Y**	**2A**	**B2**
78-00-2	**Tetraethyl lead**	**Y**		**B1**
79-01-6	**Trichloroethylene**	**Y**	**2A**	**B3**
75-01-4	Vinyl chloride	Y	1	
	Polychlorinated Alkanes			
85535-84-8	**Alkanes, C_{10-13}, chloro**	**Y**		
68920-70-7	**Alkanes, C_{6-12}, chloro**	**Y**	**2A**	
	CFCs (Chlorofluorocarbons) and HCFCs (Hydrochlorofluorocarbons)			
75-69-4	**CFC-11**	**Y**		
76-14-2	**CFC-114**	**Y**		
76-15-3	**CFC-115**	**Y**		
75-71-8	**CFC-12**	**Y**		
75-72-9	**CFC-13**	**Y**		
41834-16-6	**HCFC-122 and all isomers**	**Y**		
34077-87-7	**HCFC-123 and all isomers**	**Y**		
63938-10-3	**HCFC-124 and all isomers**	**Y**		
1717-00-6	**HCFC-141b**	**Y**		
75-68-3	**HCFC-142b**	**Y**		
75-45-6	**HCFC-22**	**Y**		
	Halons			
353-59-3	**Halon 1211**	**Y**		
75-63-8	**Halon 1301**	**Y**		

* Carcinogens classified as Carcinogenic (1) or Probably Carcinogenic (2A) to humans by the International Agency for Research on Cancer (IARC).

Note: Substances added to the NPRI for 1999 appear in bold lettering.

TABLE 7-2
NATIONAL SUMMARY OF NPRI-LISTED, *CEPA*-TOXIC AND CARCINOGENIC POLLUTANTS IN 1999 - *(ALL DATA)*

	1999 All Substances	1999 New Substances	% Attributable to New Substances
Total Facilities	**859**	**74**	**8.6**
Total Reports	**1 286**	**98**	**7.6**
Pollutants Reported	**41**	**16**	**39.0**
On-site Releases (tonnes):			
Air	13 040.765	1 158.381	8.9
Water	**119.588**	**2.526**	**2.1**
Land	18 356.505	13 197.983	71.9
Underground Injection	**97.769**	**0.000**	**0.0**
Total On-site Releases	**31 638.560**	**14 361.087**	**45.4**
Off-site Transfers for Treatment Prior to Final Disposal (tonnes):			
Physical	400.885	204.911	51.1
Chemical	**625.336**	**323.200**	**51.7**
Biological	2.445	0.000	0.0
Incineration	**717.928**	**12.500**	**1.7**
MSTP	120.627	52.900	43.9
Total Off-site Treatment	**1 867.221**	**593.511**	**31.8**
Off-site Transfers for Final Disposal (tonnes):			
Landfill	32 446.168	2 874.538	8.9
Storage	**205.526**	**16.409**	**8.0**
Underground Injection	26.674	0.000	0.0
Land Treatment	**5.806**	**0.000**	**0.0**
Total Off-site Final Disposal	**32 684.174**	**2 890.947**	**8.8**
Total Off-site Transfers for Disposal	**34 551.395**	**3 484.458**	**10.1**
Off-site Transfers for Recycling (tonnes):			
Recycling	18 905.231	342.726	1.8
Energy Recovery	**825.821**	**0.000**	**0.0**
Total Off-site Transfers for Recycling	**19 731.052**	**342.726**	**1.7**

Note: Because of rounding of on-site release and off-site transfer quantities, the totals may not equal the sum of the individual values.

TABLE 7-3
NATIONAL SUMMARY OF NPRI-LISTED, *CEPA*-TOXIC AND CARCINOGENIC POLLUTANTS (1997-1999) - *(MATCHED DATA)*

	1997	1998	1999	% Change (1997-1999)	% Change (1998-1999)
Total Facilities	**720**	**740**	**792**	**10.0**	**7.0**
Total Reports	**1 071**	**1 080**	**1 149**	**7.3**	**6.4**
Pollutants Reported	**26**	**26**	**25**	**-3.8**	**-3.8**
On-site Releases (tonnes):					
Air	10 998.261	10 791.219	11 405.995	3.7	5.7
Water	144.633	87.396	62.398	-56.9	-28.6
Land	4 255.506	4 393.757	5 140.497	20.8	17.0
Underground Injection	1 964.435	1 864.320	97.769	-95.0	-94.8
Total On-site Releases	**17 394.985**	**17 164.747**	**16 728.395**	**-3.8**	**-2.5**
Off-site Transfers for Treatment Prior to Disposal (tonnes):					
Physical	148.408	114.226	195.974	32.1	71.6
Chemical	391.867	403.406	299.636	-23.5	-25.7
Biological	1.170	3.447	2.444	108.9	-29.1
Incineration	679.439	638.756	705.428	3.8	10.4
MSTP	38.427	30.889	67.704	76.2	119.2
Total Off-site Treatment	**1 259.311**	**1 190.724**	**1 271.186**	**0.9**	**6.8**
Off-site Transfers for Final Disposal (tonnes):					
Landfill	6 441.191	6 091.128	29 473.642	357.6	383.9
Storage	115.088	212.763	189.117	64.3	-11.1
Underground Injection	45.200	22.881	26.674	-41.0	16.6
Land Treatment	57.650	6.737	5.805	-89.9	-13.8
Total Off-site Final Disposal	**6 659.129**	**6 333.509**	**29 695.238**	**345.9**	**368.9**
Total Off-site Transfers for Disposal	**7 918.440**	**7 524.233**	**30 966.424**	**291.1**	**311.6**
Off-site Transfers for Recyclying (tonnes):					
Recycling	N/A	22 224.274	18 557.815	N/A	-16.5
Energy Recovery	N/A	769.089	825.821	N/A	7.4
Total Off-site Transfers for Recycling	**N/A**	**22 993.363**	**19 383.636**	**N/A**	**-15.7**

Note: Because of rounding of on-site release and off-site transfer quantities, the totals may not equal the sum of the individual values.

TABLE 7-3
NATIONAL SUMMARY OF NPRI-LISTED, *CEPA*-TOXIC AND CARCINOGENIC POLLUTANTS (1997-1999) - *(MATCHED DATA)*

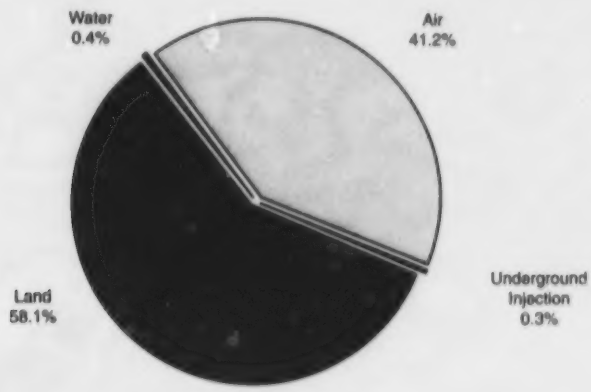
	1997	1998	1999	% Change (1997-1999)	% Change (1998-1999)
Total Facilities	**720**	**740**	**792**	**10.0**	**7.0**
Total Reports	**1 071**	**1 080**	**1 149**	**7.3**	**6.4**
Pollutants Reported	**26**	**26**	**25**	**-3.8**	**-3.8**
On-site Releases (tonnes):					
Air	10 998.261	10 791.219	11 405.995	3.7	5.7
Water	**144.633**	**87.396**	**62.398**	**-56.9**	**-28.6**
Land	4 255.506	4 393.757	5 140.497	20.8	17.0
Underground Injection	**1 964.435**	**1 864.320**	**97.769**	**-95.0**	**-94.8**
Total On-site Releases	**17 394.985**	**17 164.747**	**16 728.395**	**-3.8**	**-2.5**
Off-site Transfers for Treatment Prior to Disposal (tonnes):					
Physical	148.408	114.226	195.974	32.1	71.6
Chemical	**391.867**	**403.406**	**299.636**	**-23.5**	**-25.7**
Biological	1.170	3.447	2.444	108.9	-29.1
Incineration	**679.439**	**638.756**	**705.428**	**3.8**	**10.4**
MSTP	38.427	30.889	67.704	76.2	119.2
Total Off-site Treatment	**1 259.311**	**1 190.724**	**1 271.186**	**0.9**	**6.8**
Off-site Transfers for Final Disposal (tonnes):					
Landfill	6 441.191	6 091.128	29 473.642	357.6	383.9
Storage	**115.068**	**212.763**	**189.117**	**64.3**	**-11.1**
Underground Injection	45.200	22.881	26.674	-41.0	16.6
Land Treatment	**57.650**	**6.737**	**5.805**	**-89.9**	**-13.8**
Total Off-site Final Disposal	**6 659.129**	**6 333.509**	**29 695.238**	**345.9**	**368.9**
Total Off-site Transfers for Disposal	**7 918.440**	**7 524.233**	**30 966.424**	**291.1**	**311.6**
Off-site Transfers for Recyclying (tonnes):					
Recycling	N/A	22 224.274	18 557.815	N/A	-16.5
Energy Recovery	**N/A**	**769.089**	**825.821**	**N/A**	**7.4**
Total Off-site Transfers for Recycling	**N/A**	**22 993.363**	**19 383.636**	**N/A**	**-15.7**

Note: Because of rounding of on-site release and off-site transfer quantities, the totals may not equal the sum of the individual values.

7.2 On-site Releases of NPRI-listed, *CEPA*-toxic and Carcinogenic Pollutants in 1999

In 1999, facilities in Canada reported on-site releases of *CEPA*-toxic and carcinogenic pollutants totalling 31 639 tonnes (or 9.7% of all releases of NPRI pollutants). Releases to air accounted for 13 041 tonnes (or 41.2% of releases of *CEPA*-toxic and carcinogenic pollutants), releases to surface water for 120 tonnes (or 0.4%), releases to land for 18 356 tonnes (or 58.0%), and releases underground by means of injection for 98 tonnes (or 0.3%).

Figure 7-1
On-site Releases of NPRI-listed, *CEPA*-toxic and Carcinogenic Pollutants in 1999 - *(all data)*



Total On-site Releases: 31 639 tonnes

Sixteen of the 20 *CEPA*-toxic and carcinogenic substances added to the NPRI were reported in 1999. The new substances represented 45.4% (or 14 361 tonnes) of on-site releases. Some 91.9% (or 13 198 tonnes) of the newly-added *CEPA*-toxic and carcinogenic pollutants were released to land. Releases to air accounted for 8.1% (or 1 158 tonnes), and releases to water and underground injection were negligible (less than 0.1%).

7.2.1 On-site Releases of NPRI-listed, *CEPA*-toxic and Carcinogenic Pollutants – 25 Pollutants Released in the Largest Quantities

Table 7-4 shows the 25 NPRI-listed, *CEPA*-toxic and carcinogenic pollutants released on site in the largest quantities in 1999, by environmental medium. On-site releases of these pollutants represented almost 100% (or 31 631 tonnes) of the releases. Some 839 reports (or 98% of the total received for *CEPA*-toxic and carcinogenic pollutants) were submitted in 1999 for these 25 pollutants.

In 1999, the five pollutants released on site in the largest quantities were:

1. Calcium fluoride - 13 056 tonnes
2. Hydrogen fluoride - 3 542 tonnes
3. Lead (and its compounds) - 3 495 tonnes
4. Dichloromethane - 2 389 tonnes
5. Asbestos (friable form) - 1 726 tonnes

Calcium fluoride was added to the NPRI list in 1999. More than 99% of this pollutant was released to land, by one facility as described in section 4.3.

By comparison, in 1998 the following pollutants were released on site in the largest quantities:

1. Hydrogen fluoride - 3 404 tonnes
2. Asbestos (friable form) - 3 026 tonnes
3. Dichloromethane - 2 232 tonnes
4. Arsenic (and its compounds) - 2 082 tonnes
5. Benzene - 1 568 tonnes

Notable changes in 1999 were in the releases of arsenic and lead (and their compounds):

- Releases of arsenic (and its compounds) dropped 86% to 286 tonnes in 1999; Royal Oak Mines Inc., Giant Mine (NPRI #4221) reported on-site releases of 1 725 tonnes in 1998, but did not report in 1999 as the mine was closed.
- Releases of lead (and its compounds) rose 125% from 1 551 tonnes in 1998 to 3 495 tonnes in 1999, with one facility reporting an increase of 2 212 tonnes – Safety-Kleen Ltd., Lambton Facility (NPRI #2537) as noted in section 4.2.

Table 7-4
On-site Releases of NPRI-listed, *CEPA*-toxic and Carcinogenic Pollutants in 1999 – 25 Pollutants Released in the Largest Quantitites - (tonnes) - *(all data)*

CAS #	Pollutant	Air	Underground Injection	Water	Land	Total
7789-75-5	Calcium fluoride	19.526	0.000	0.000	13 035.683	13 056.166
7664-39-3	Hydrogen fluoride	3 541.028	0.000	0.009	0.000	3 541.969
N/A	Lead (and its compounds)	481.530	0.039	14.326	2 995.174	3 495.282
75-09-2	Dichloromethane	2 387.457	0.000	0.000	0.049	2 388.935
1332-21-4	Asbestos (friable form)	0.000	0.000	0.000	1 725.068	1 725.708
50-00-0	Formaldehyde	1 610.742	4.715	36.392	2.376	1 656.299
71-43-2	Benzene	1 424.388	92.955	1.051	0.617	1 523.061
75-07-0	Acetaldehyde	847.412	0.000	19.979	0.146	867.688
75-68-3	HCFC-142b	746.066	0.000	0.000	0.000	746.066
79-01-6	Trichloroethylene	689.735	0.000	0.000	0.000	690.309
N/A	Nickel (and its compounds)	378.699	0.010	25.376	198.886	606.926
N/A	Arsenic (and its compounds)	176.993	0.000	16.226	92.841	286.304
N/A	Cadmium (and its compounds)	36.939	0.000	1.437	141.372	179.848
1717-00-6	HCFC-141b	178.854	0.000	0.000	0.000	178.955
7681-49-4	Sodium fluoride	0.000	0.000	0.715	162.300	163.015
75-45-6	HCFC-22	136.612	0.000	0.000	0.000	137.479
127-18-4	Tetrachloroethylene	124.991	0.000	0.036	0.437	125.902
106-99-0	1,3-Butadiene	95.714	0.000	0.000	0.000	96.089
2551-62-4	Sulphur hexafluoride	73.328	0.000	0.000	0.000	73.328
107-06-2	1,2-Dichloroethane	26.749	0.049	0.198	0.304	27.300
75-21-8	Ethylene oxide	21.690	0.000	0.000	0.000	22.359
75-01-4	Vinyl chloride	18.734	0.001	0.127	0.000	19.137
117-81-7	*Bis*(2-ethylhexyl) phthalate	8.976	0.000	0.000	1.186	10.285
107-13-1	Acrylonitrile	8.185	0.000	0.000	0.000	9.460
N/A	Mercury (and its compounds)	1.650	0.000	1.882	0.066	3.608
Total Largest On-site Releases		13 035.998	97.769	117.754	18 356.505	31 631.478
National Total - On-site Releases		13 040.765	97.769	119.588	18 356.505	31 638.560
% of National Total		100.0	100.0	98.5	100.0	100.0

TABLE 7-4
ON-SITE RELEASES OF NPRI-LISTED, *CEPA*-TOXIC AND CARCINOGENIC POLLUTANTS IN 1999 – 25 POLLUTANTS RELEASED IN THE LARGEST QUANTITITES - (TONNES) - *(ALL DATA)*

CAS #	Pollutant	Air	Underground Injection	Water	Land	Total
7789-75-5	Calcium fluoride	19.526	0.000	0.000	13 035.683	13 056.166
7664-39-3	Hydrogen fluoride	3 541.028	0.000	0.009	0.000	3 541.969
N/A	Lead (and its compounds)	481.530	0.039	14.326	2 995.174	3 495.282
75-09-2	Dichloromethane	2 387.457	0.000	0.000	0.049	2 388.935
1332-21-4	Asbestos (friable form)	0.000	0.000	0.000	1 725.068	1 725.708
50-00-0	Formaldehyde	1 610.742	4.715	36.392	2.376	1 656.299
71-43-2	Benzene	1 424.388	92.955	1.051	0.617	1 523.061
75-07-0	Acetaldehyde	847.412	0.000	19.979	0.146	867.688
75-68-3	HCFC-142b	746.066	0.000	0.000	0.000	746.066
79-01-6	Trichloroethylene	689.735	0.000	0.000	0.000	690.309
N/A	Nickel (and its compounds)	378.699	0.010	25.376	198.886	606.926
N/A	Arsenic (and its compounds)	176.993	0.000	16.226	92.841	286.304
N/A	Cadmium (and its compounds)	36.939	0.000	1.437	141.372	179.848
1717-00-6	HCFC-141b	178.854	0.000	0.000	0.000	178.955
7681-49-4	Sodium fluoride	0.000	0.000	0.715	162.300	163.015
75-45-6	HCFC-22	136.612	0.000	0.000	0.000	137.479
127-18-4	Tetrachloroethylene	124.991	0.000	0.036	0.437	125.902
106-99-0	1,3-Butadiene	95.714	0.000	0.000	0.000	96.089
2551-62-4	Sulphur hexafluoride	73.328	0.000	0.000	0.000	73.328
107-06-2	1,2-Dichloroethane	26.749	0.049	0.198	0.304	27.300
75-21-8	Ethylene oxide	21.690	0.000	0.000	0.000	22.359
75-01-4	Vinyl chloride	18.734	0.001	0.127	0.000	19.137
117-81-7	*Bis*(2-ethylhexyl) phthalate	8.976	0.000	0.000	1.186	10.285
107-13-1	Acrylonitrile	8.185	0.000	0.000	0.000	9.460
N/A	Mercury (and its compounds)	1.650	0.000	1.882	0.066	3.608
Total Largest On-site Releases		13 035.998	97.769	117.754	18 356.505	31 631.478
National Total - On-site Releases		13 040.765	97.769	119.588	18 356.505	31 638.560
% of National Total		100.0	100.0	98.5	100.0	100.0

7.2.2 On-site Releases of NPRI-listed, *CEPA*-toxic and Carcinogenic Pollutants, by Industrial Sector

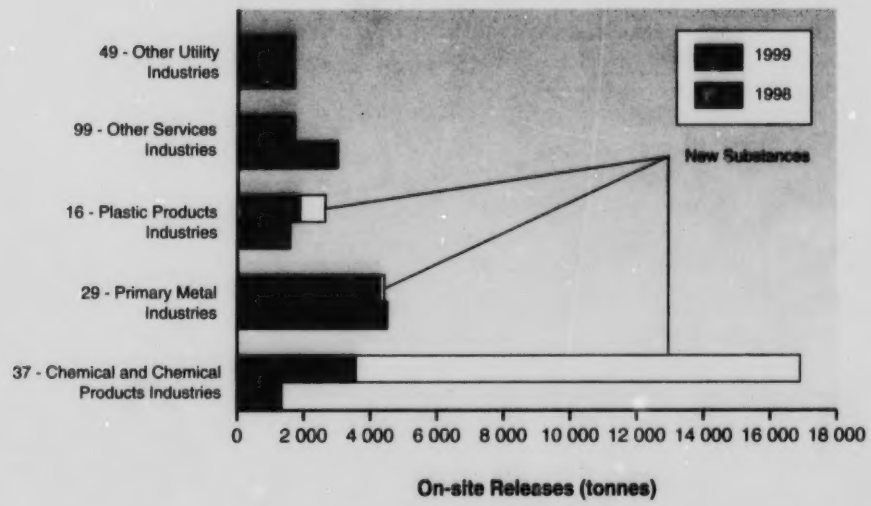
In 1999, the five industrial sectors which reported the largest on-site releases of *CEPA*-toxic and carcinogenic pollutants accounted for 86% (or 27 206 tonnes) of total releases. They were:

1. SIC 37 - Chemical and Chemical Products Industries - 16 866 tonnes
2. SIC 29 - Primary Metal Industries - 4 388 tonnes
3. SIC 16 - Plastic Products Industries - 2 603 tonnes
4. SIC 99 - Other Services Industries - 1 680 tonnes
5. SIC 49 - Other Utility Industries - 1 669 tonnes

They were also the same sectors that reported the largest on-site releases in 1998, although the ranking differed.

Figure 7-2 highlights these five sectors with their 1998 and 1999 reported on-site releases.

Figure 7-2
Five Industrial Sectors Reporting the Largest On-site Releases of NPRI-listed, *CEPA*-toxic and Carcinogenic Pollutants in 1998 and 1999 - *(all data)*



In 1999, the 'chemical and chemical products industries' sector reported the largest on-site releases of *CEPA*-toxic and carcinogenic pollutants with 16 866 tonnes, of which 13 328 tonnes were attributable to newly-added substances. As outlined in section 4.3, releases of calcium fluoride were mostly to land at one facility (12 991 tonnes).

The 'primary metal industries' sector reported the second-largest on-site releases of *CEPA*-toxic and carinogenic pollutants with 4 388 tonnes in 1999, of which 120 tonnes were new substances.

Ranked third was the 'plastic products industries' sector, reporting 2 603 tonnes of *CEPA*-toxic and carcinogenic pollutants released on site in 1999, of which 749 tonnes were attributable to new substances.

The 'other services industries' sector ranked fourth, with 1 680 tonnes of *CEPA*-toxic and carcinogenic pollutants released on site in 1999. There were no reported releases of new substances.

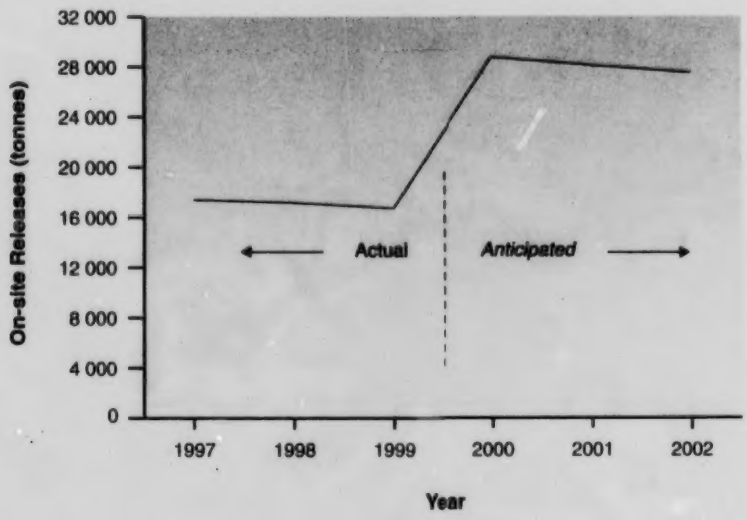
The 'other utility industries' sector ranked fifth, with 1 669 tonnes of *CEPA*-toxic and carcinogenic pollutants released on site in 1999. Releases of new substances were negligible.

7.2.3 Anticipated On-site Releases of NPRI-listed, *CEPA*-toxic and Carcinogenic Pollutants (2000-2002)

Facilities were required to provide projected estimates for on-site releases for the next three years (2000-2002). Estimates for 2003 and 2004 were requested, but were optional. Facilities may consider a number of factors before providing on-site release estimates, including anticipated production rates, economic conditions and process changes.

Figure 7-3 shows reported on-site releases for 1997, 1998, 1999 and projected releases for 2000 through 2002, as reported in 1999, for matched data only (see definition of matched data in section 3.3).

Figure 7-3
Actual and Anticipated On-site Releases of NPRI-listed, *CEPA*-toxic and Carcinogenic Pollutants (1997-2002) - *(matched data)*



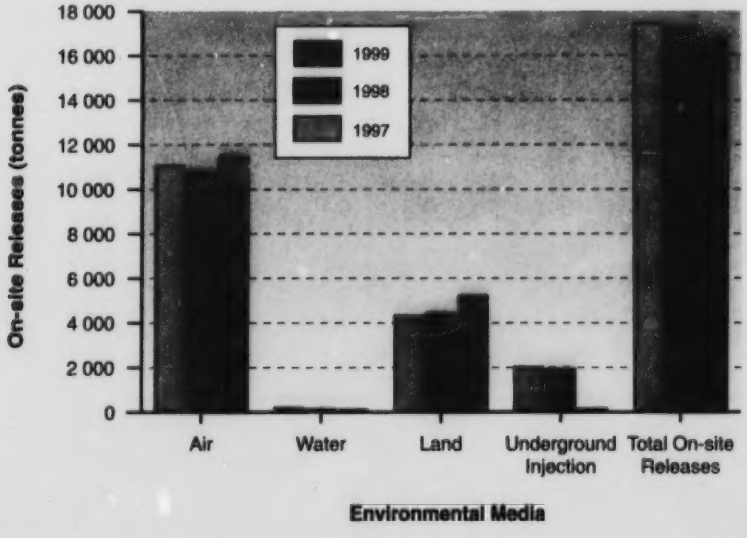
7.2.4 Trends in On-site Releases of NPRI-listed, *CEPA*-toxic and Carcinogenic Pollutants (1997-1999)

There were significant changes to the NPRI List of Substances between 1998 and 1999. To assess trends in on-site releases, a matched data set (as defined in section 3.3) was used to perform the analysis over a three-year period (1997 to 1999).

As shown in Table 7-3, the matched data represent a common core of 28 *CEPA*-toxic and carcinogenic substances in the NPRI. From 1997 to 1999, the number of facilities reporting to the NPRI for that same list of substances increased by 10.0%, and the number of reports increased 7.3%. However, the number of pollutants for which a report had been filed varied from year to year. For 1999, the matched data set represented:

- 92.2% of 859 facilities reporting *CEPA*-toxic and carcinogenic pollutants
- 89.1% of 1 286 *CEPA*-toxic and carcinogenic pollutant reports
- 61.0% of 41 *CEPA*-toxic and carcinogenic pollutants for which a report was submitted to the NPRI
- 52.9% of the total on-site releases of *CEPA*-toxic and carcinogenic pollutants (31 639 tonnes)

Figure 7-4
Trends in On-site Releases of NPRI-listed, *CEPA*-toxic and Carcinogenic Pollutants (1997-1999) - *(matched data)*



For matched data, the following trends can be observed:

- In 1999, reported on-site releases of *CEPA*-toxic and carcinogenic pollutants were 16 728 tonnes, 2.5% (or 436 tonnes) lower than in 1998.
- In 1998, on-site releases were 17 165 tonnes, 1.3% (or 230 tonnes) lower than in 1997.
- Overall, over a three-year period, on-site releases in Canada decreased 3.8%, from 17 395 tonnes in 1997 to 16 728 tonnes in 1999.

Highlights of on-site releases from Table 7-3 and Figure 7-4 follow:

- Releases to air were 11 406 tonnes in 1999, 3.7% more than in 1997.
- Releases to water were 62 tonnes in 1999, a decrease of 29% from 1998 and 57% from 1997.
- Releases to land were 5 140 tonnes in 1999, an increase of 17% from 1998 and 21% from 1997.
- Releases to underground by means of injection were 98 tonnes in 1999, 95% lower than in 1998 and 1997, attributable to one facility that closed in 1999 (see section 7.2.1).

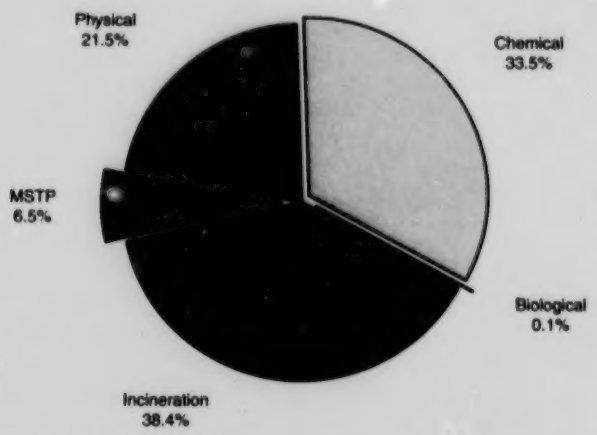
7.3 Off-site Transfers for Disposal of NPRI-listed, *CEPA*-toxic and Carcinogenic Pollutants in 1999

In 1999, facilities across Canada reported off-site transfers for disposal of *CEPA*-toxic and carcinogenic pollutants totalling 34 551 tonnes (or 26.2% of transfers for disposal of all NPRI pollutants). More specifically, transfers for treatment prior to final disposal accounted for 1 867 tonnes (or 5.4% of transfers of *CEPA*-toxic and carcinogenic pollutants), and transfers for final disposal for 32 684 tonnes (or 94.6%).

Off-site transfers reported by facilities in 1999 (see Table 7-2) were:

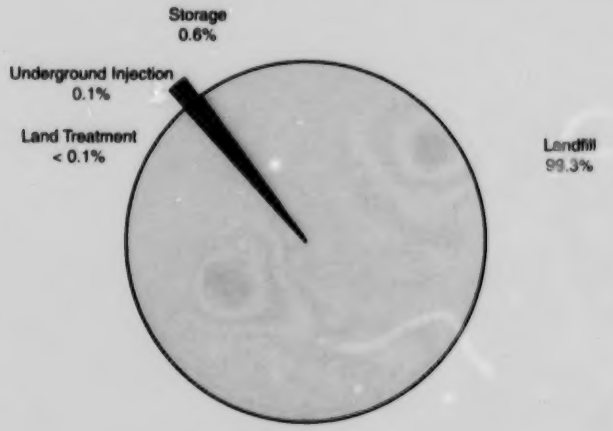
- Off-site transfers for treatment prior to final disposal (Figure 7-5):
  - Physical - 401 tonnes (or 1.2% of total transfers of *CEPA*-toxic and carcinogenic pollutants)
  - Chemical - 625 tonnes (or 1.8%)
  - Biological - 2 tonnes (or less than 0.1%)
  - Incineration - 718 tonnes (or 2.1%)
  - Municipal sewage treatment plant (MSTP) - 121 tonnes (or 0.3%)
- Off-site transfers for final disposal (Figure 7-6):
  - Landfill - 32 446 tonnes (or 93.9% of total transfers of *CEPA*-toxic and carcinogenic pollutants)
  - Storage - 205 tonnes (or 0.6%)
  - Underground injection - 27 tonnes (or 0.1%)
  - Land treatment - 6 tonnes (or less than 0.1%)

Figure 7-5
Off-site Transfers for Treatment Prior to Final Disposal of NPRI-listed, *CEPA*-toxic and Carcinogenic Pollutants in 1999 - *(all data)*



Total Off-site Transfers for Treatment: 1 867 tonnes

Figure 7-6
Off-site Transfers for Final Disposal of NPRI-listed, *CEPA*-toxic and Carcinogenic Pollutants in 1999 - *(all data)*



Total Off-site Transfers for Final Disposal: 32 684 tonnes

7.3.1 Off-site Transfers for Disposal of NPRI-listed, *CEPA*-toxic and Carcinogenic Pollutants in 1999 – 25 Pollutants Transferred in the Largest Quantities

Table 7-5 highlights the 25 *CEPA*-toxic and carcinogenic pollutants transferred off site for disposal in the largest quantities in 1999, by category. They represented almost all transfers for disposal of these pollutants.

In 1999, the five pollutants transferred off site in the largest quantities were:

1. Lead (and its compounds) - 15 274 tonnes
2. Cadmium (and its compounds) - 12 130 tonnes
3. Calcium fluoride - 3 409 tonnes
4. Asbestos (friable form) - 1 575 tonnes
5. Nickel (and its compounds) - 685 tonnes

Calcium fluoride was added to the NPRI for 1999. More than 80% of this pollutant was transferred to landfill by two facilities – Alcan Métal Primaire, Usine Shawinigan (NPRI #3057) and Secal Beauharnois Alcan, Alcan Beauharnois (NPRI #4808).

As explained in section 4.3, calcium fluoride is used as a reactant, or a chemical aid to lower the melting temperature in the electrolytic bath where metal aluminum is produced from alumina. The calcium fluoride is then recovered from the lining of the electrolytic tank by a chemical process before being transferred off-site to a landfill, as carried out by the above-mentioned facilities.

By comparison, in 1998 the following pollutants were transferred for disposal in the largest quantities:

1. Lead (and its compounds) - 3 340 tonnes
2. Asbestos (friable form) - 2 456 tonnes
3. Nickel (and its compounds) - 642 tonnes
4. Dichloromethane - 240 tonnes
5. Formaldehyde - 223 tonnes

Notable changes in 1999 were large increases in off-site transfers for disposal of lead and cadmium (and their compounds). As noted in section 5.2, all of these increases were attributable to only one facility.

TABLE 7-5
OFF-SITE TRANSFERS FOR DISPOSAL OF NPRI-LISTED, *CEPA*-TOXIC AND CARCINOGENIC POLLUTANTS IN 1999 – 25 POLLUTANTS TRANSFERRED IN THE LARGEST QUANTITIES - (TONNES) - *(ALL DATA)*

CAS #	Pollutant	Physical	Chemical	Biological	Incinceration	MSTP	Landfill	Underground Storage	Underground Injection	Land Treatment	Total
N/A	Lead (and its compounds)	10.203	132.259	0.000	27.865	2.593	15 029.524	70.849	0.060	0.264	15 273.617
N/A	Cadmium (and its compounds)	0.290	0.060	0.000	6.000	0.082	12 123.626	0.100	0.000	0.000	12 130.158
7789-75-5	Calcium fluoride	204.000	323.200	0.000	0.000	0.000	2 865.838	16.409	0.000	0.000	3 409.447
1332-21-4	Asbestos (friable form)	0.000	0.000	0.000	0.000	0.000	1 575.235	0.000	0.000	0.000	1 575.235
N/A	Nickel (and its compounds)	151.406	63.465	0.000	1.236	3.935	405.855	36.680	22.380	0.000	684.957
50-00-0	Formaldehyde	0.030	2.500	2.041	138.661	57.717	128.979	0.423	0.000	0.284	330.635
N/A	Arsenic (and its compounds)	0.757	65.370	0.000	0.032	0.105	135.498	3.501	0.000	0.000	205.263
75-09-2	Dichloromethane	0.020	6.990	0.000	175.056	2.500	0.430	17.155	0.000	0.000	202.151
71-43-2	Benzene	11.770	0.000	0.313	60.166	0.341	53.736	48.292	4.234	5.240	184.092
127-18-4	Tetrachloroethylene	5.359	0.180	0.090	167.321	0.000	0.276	6.572	0.000	0.000	179.798
79-01-6	Trichloroethylene	4.711	3.880	0.000	98.514	0.000	0.379	1.392	0.000	0.000	108.876
117-81-7	*Bis*(2-ethylhexyl) phthalate	1.186	8.030	0.000	3.254	0.454	58.040	0.000	0.000	0.000	70.964
107-13-1	Acrylonitrile	0.000	0.000	0.000	2.260	0.000	60.000	0.000	0.000	0.000	62.260
7681-49-4	Sodium fluoride	0.223	0.000	0.000	0.000	52.900	0.000	0.000	0.000	0.000	53.123
7664-39-3	Hydrogen fluoride	0.000	19.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	19.400
56-23-5	Carbon tetrachloride	0.000	0.000	0.000	11.084	0.000	0.000	1.590	0.000	0.000	12.674
75-69-4	CFC-11	0.000	0.000	0.000	12.500	0.000	0.000	0.000	0.000	0.000	12.500
N/A	Mercury (and its compounds)	9.674	0.001	0.001	0.000	0.000	0.001	0.205	0.000	0.018	9.900
107-06-2	1,2-Dichloroethane	0.000	0.000	0.000	6.117	0.000	0.000	2.358	0.000	0.000	8.475
106-99-0	1,3-Butadiene	0.000	0.000	0.000	7.856	0.000	0.000	0.000	0.000	0.000	7.856
1717-00-6	HCFC-141b	0.000	0.000	0.000	0.000	0.000	7.600	0.000	0.000	0.000	7.600
75-45-6	HCFC-22	0.688	0.000	0.000	0.000	0.000	1.100	0.000	0.000	0.000	1.788
75-01-4	Vinyl chloride	0.568	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.570
75-07-0	Acetaldehyde	0.000	0.000	0.000	0.000	0.000	0.048	0.000	0.000	0.000	0.048
79-06-1	Acrylamide	0.000	0.001	0.000	0.004	0.000	0.000	0.000	0.000	0.000	0.005
Total Largest Off-site Transfers for Disposal		**400.885**	**625.336**	**2.445**	**717.928**	**120.627**	**32 446.165**	**205.526**	**26.674**	**5.806**	**34 551.392**
National Total - Off-site Transfers for Disposal		**400.885**	**625.336**	**2.445**	**717.928**	**120.627**	**32 446.168**	**205.526**	**26.674**	**5.806**	**34 551.395**
% of National Total		**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Table 7-5
Off-site Transfers for Disposal of NPRI-listed, *CEPA*-toxic and Carcinogenic Pollutants in 1999 – 25 Pollutants Transferred in the Largest Quantities - (tonnes) - *(all data)*

CAS #	Pollutant	Physical	Chemical	Biological	Incineration	MSTP	Landfill	Underground Storage	Underground Injection	Land Treatment	Total
N/A	Lead (and its compounds)	10.203	132.259	0.000	27.865	2.593	15 029.524	70.849	0.060	0.264	15 273.617
N/A	Cadmium (and its compounds)	0.290	0.060	0.000	6.000	0.082	12 123.626	0.100	0.000	0.000	12 130.158
7789-75-5	Calcium fluoride	204.000	323.200	0.000	0.000	0.000	2 865.838	16.409	0.000	0.000	3 409.447
1332-21-4	Asbestos (friable form)	0.000	0.000	0.000	0.000	0.000	1 575.235	0.000	0.000	0.000	1 575.235
N/A	Nickel (and its compounds)	151.406	63.465	0.000	1.236	3.935	405.855	36.680	22.380	0.000	684.957
50-00-0	Formaldehyde	0.030	2.500	2.041	138.661	57.717	128.979	0.423	0.000	0.284	330.635
N/A	Arsenic (and its compounds)	0.757	65.370	0.000	0.032	0.105	135.498	3.501	0.000	0.000	205.263
75-09-2	Dichloromethane	0.020	6.990	0.000	175.056	2.500	0.430	17.155	0.000	0.000	202.151
71-43-2	Benzene	11.770	0.000	0.313	60.166	0.341	53.736	48.292	4.234	5.240	184.092
127-18-4	Tetrachloroethylene	5.359	0.180	0.090	167.321	0.000	0.276	6.572	0.000	0.000	179.798
79-01-6	Trichloroethylene	4.711	3.880	0.000	98.514	0.000	0.379	1.392	0.000	0.000	108.876
117-81-7	Bis(2-ethylhexyl) phthalate	1.186	8.030	0.000	3.256	0.454	58.040	0.000	0.000	0.000	70.964
107-13-1	Acrylonitrile	0.000	0.000	0.000	2.260	0.000	60.000	0.000	0.000	0.000	62.260
7681-49-4	Sodium fluoride	0.223	0.000	0.000	0.000	52.900	0.000	0.000	0.000	0.000	53.123
7664-39-3	Hydrogen fluoride	0.000	19.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	19.400
56-23-5	Carbon tetrachloride	0.000	0.000	0.000	11.084	0.000	0.000	1.590	0.000	0.000	12.674
75-69-4	CFC-11	0.000	0.000	0.000	12.500	0.000	0.000	0.000	0.000	0.000	12.500
N/A	Mercury (and its compounds)	9.674	0.001	0.001	0.000	0.000	0.001	0.205	0.000	0.018	9.900
107-06-2	1,2-Dichloroethane	0.000	0.000	0.000	6.117	0.000	0.000	2.358	0.000	0.000	8.475
106-99-0	1,3-Butadiene	0.000	0.000	0.000	7.856	0.000	0.000	0.000	0.000	0.000	7.856
1717-00-6	HCFC-141b	0.000	0.000	0.000	0.000	0.000	7.600	0.000	0.000	0.000	7.600
75-45-6	HCFC-22	0.688	0.000	0.000	0.000	0.000	1.100	0.000	0.000	0.000	1.788
75-01-4	Vinyl chloride	0.568	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.570
75-07-0	Acetaldehyde	0.000	0.000	0.000	0.000	0.000	0.048	0.000	0.000	0.000	0.048
79-06-1	Acrylamide	0.000	0.001	0.000	0.004	0.000	0.000	0.000	0.000	0.000	0.005
Total Largest Off-site Transfers for Disposal		**400.885**	**625.336**	**2.445**	**717.928**	**120.627**	**32 446.165**	**205.526**	**26.674**	**5.806**	**34 551.392**
National Total - Off-site Transfers for Disposal		**400.885**	**625.336**	**2.445**	**717.928**	**120.627**	**32 446.168**	**205.526**	**26.674**	**5.806**	**34 551.395**
% of National Total		**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

7.3.2 Off-site Transfers for Disposal of NPRI-listed, *CEPA*-toxic and Carcinogenic Pollutants, by Industrial Sector

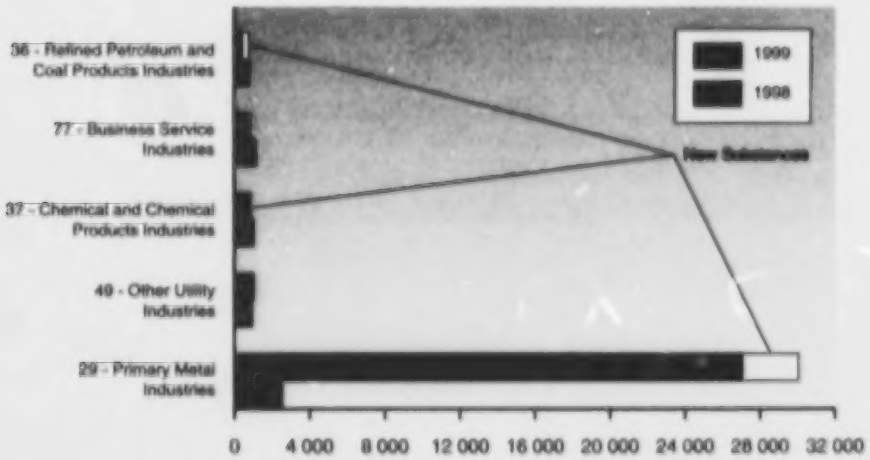
In 1999, the five industrial sectors reporting the largest off-site transfers for disposal of *CEPA*-toxic and carcinogenic pollutants accounted for 96% (or 33 264 tonnes) of transfers for disposal. They were:

1. SIC 29 - Primary Metal Industries - 30 007 tonnes
2. SIC 49 - Other Utility Industries - 965 tonnes
3. SIC 37 - Chemical and Chemical Products Industries - 794 tonnes
4. SIC 77 - Business Service Industries - 778 tonnes
5. SIC 36 - Refined Petroleum and Coal Products Industries - 720 tonnes

These five industrial sectors also reported the largest off-site transfers for disposal in 1998, although the ranking differed slightly.

Figure 7-7 highlights these five sectors with their 1998 and 1999 reported off-site transfers for disposal. The chart also shows the portion of transfers attributed to the new *CEPA*-toxic and carcinogenic pollutants reported in 1999.

Figure 7-7
Five Industrial Sectors Reporting the Largest Off-site Transfers for Disposal of NPRI-listed, *CEPA*-toxic and Carcinogenic Pollutants in 1998 and 1999 - *(all data)*



In 1999, the 'primary metal industries' sector reported the largest off-site transfers for disposal of *CEPA*-toxic and carcinogenic pollutants with 30 007 tonnes, of which 2 989 tonnes were attributable to the newly-added substances. As outlined in section 5.3, off-site transfers of lead and cadmium (and their compounds) increased to 14 261 and 12 045 tonnes respectively in 1999.

The 'other utility industries' sector reported the second-largest off-site transfers for disposal of *CEPA*-toxic and carcinogenic pollutants with 965 tonnes in 1999. There were no reported transfers of new substances.

Ranked third was the 'chemical and chemical products industries' sector, reporting 794 tonnes of *CEPA*-toxic and carcinogenic pollutants transferred for disposal in 1999, of which 129 tonnes were new substances.

The 'business service industries' sector ranked fourth, with 778 tonnes of *CEPA*-toxic and carcinogenic pollutants transferred off site for disposal in 1999. There were no reported transfers of new substances.

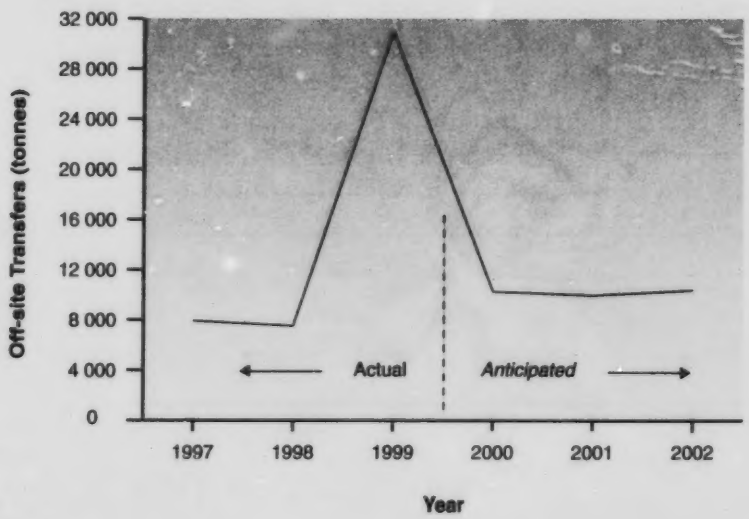
The 'refined petroleum and coal products industries' sector ranked fifth, with 720 tonnes of *CEPA*-toxic and carcinogenic pollutants transferred for disposal in 1999, of which 323 tonnes were attributable to new substances.

7.3.3 Anticipated Off-site Transfers for Disposal of NPRI-listed, *CEPA*-toxic and Carcinogenic Pollutants (2000-2002)

As indicated in section 7.2.3, facilities were required to provide projected estimates for off-site transfers for disposal for the next three years (2000-2002).

Figure 7-8 shows reported off-site transfers for disposal of these pollutants for 1997, 1998, 1999 and projected amounts for 2000 through 2002, as reported in 1999, for matched data only (see definition of matched data in section 3.3).

Figure 7-8
Actual and Anticipated Off-site Transfers for Disposal of NPRI-listed, *CEPA*-toxic and Carcinogenic Pollutants (1997-2002) - *(matched data)*



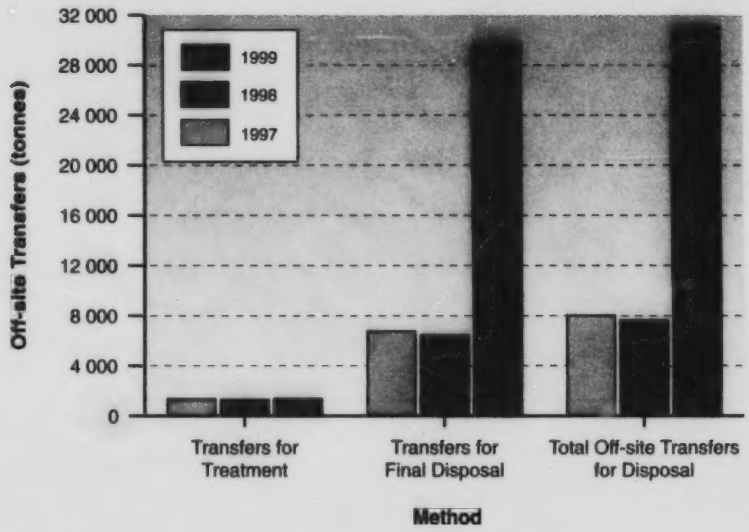
The spike in Figure 7-8 is the result of one facility, Philip Mill Services at Firestone (NPRI #5664). As explained in section 5.2, the facility began reporting to the NPRI in 1999, and declared large off-site transfers for disposal in landfills of lead (13 000 tonnes) and cadmium (12 000 tonnes), and their compounds. However, for the years 2000 to 2002, the facility reported negligible annual estimates for transfers of lead and cadmium, and their compounds, (20 tonnes for each pollutant).

7.3.4 Trends in Off-site Transfers for Disposal of NPRI-listed, *CEPA*-toxic and Carcinogenic Pollutants (1997-1999)

For the reasons noted in section 7.2.4, an analysis based on the matched data set was performed. For 1999, the matched data set represented:

- 92.2% of 859 facilities reporting *CEPA*-toxic and carcinogenic pollutants
- 89.1% of 1 286 reports for these pollutants
- 61.0% of 41 *CEPA*-toxic and carcinogenic pollutants for which a report was submitted to the NPRI
- 89.6% of the total off-site transfers of these pollutants (34 551 tonnes)

Figure 7-9
Trends in Off-site Transfers for Disposal of NPRI-listed, *CEPA*-toxic and Carcinogenic Pollutants (1997-1999) - *(matched data)*



For matched data, the following trends can be observed (Figure 7-9):

- In 1999, total off-site transfers for disposal of *CEPA*-toxic and carcinogenic pollutants in Canada totalled 30 966 tonnes, 312% higher than in 1998. More specifically, transfers for treatment prior to final disposal were 6.8% higher in 1999 than in the previous year, while transfers for final disposal increased by 369% through increased transfers of lead and cadmium (and their compounds) as noted in section 7.3.2.

- In 1998, total off-site transfers for disposal of *CEPA*-toxic and carcinogenic pollutants were 7 524 tonnes, a decrease of 5.0% from 1997. Transfers for treatment prior to final disposal and transfers for final disposal were respectively 5.4% and 4.9% lower in 1998 than in the previous year.
- Over a three-year period, total off-site transfers for disposal in Canada showed an increase of 312% from 7 918 tonnes in 1997 to 30 966 tonnes in 1999. Transfers for treatment prior to final disposal remained the same from 1997 to 1999, while transfers for final disposal rose 346%.

Highlights of total off-site transfers for disposal from Table 7-3 follow:

- Transfers for physical treatment were 196 tonnes in 1999, 32% higher than in 1997.
- Transfers for chemical treatment were 300 tonnes in 1999, about 25% lower than in 1998 and 1997.
- Transfers for incineration were 705 tonnes in 1999, 3.8% more than in 1997.
- Transfers to landfill were 29 474 tonnes in 1999, an increase of 350% from 1998 and 1997 for the reasons mentioned above.
- Transfers to storage were 189 tonnes in 1999, 64% higher than in 1997, but below the 1998 level.

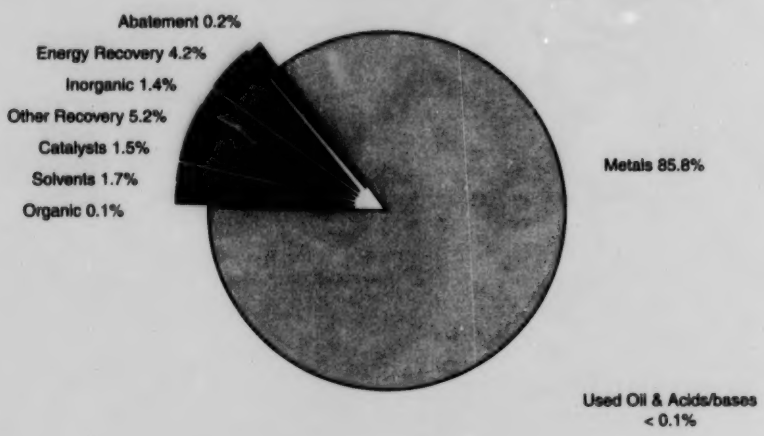
7.4 Off-site Transfers for Recycling and Energy Recovery of NPRI-listed, *CEPA*-toxic and Carcinogenic Substances in 1999

In 1999, facilities across Canada reported off-site transfers for recycling and energy recovery of *CEPA*-toxic and carcinogenic substances totalling 19 731 tonnes. Facilities categorized these transfers as:

- Energy recovery - 826 tonnes (or 4.2% of transfers for recycling and energy recovery of *CEPA*-toxic and carcinogenic substances)
- Solvents - 337 tonnes (or 1.7%)
- Organic substances - 21 tonnes (or 0.1%)
- Metals and metal compounds - 16 922 tonnes (or 85.8%)
- Inorganic materials - 268 tonnes (or 1.3%)
- Catalysts - 302 tonnes (or 1.5%)
- Pollution-abatement residues - 33 tonnes (or 0.2%)
- Used oil - less than 1 tonne (or less than 0.1%)
- Other recovery, reuse and recycling activities - 1 023 tonnes (or 5.2%)

The category 'metals and metal compounds' accounted for more than 85% of off-site transfers for recycling and energy recovery of these substances.

Figure 7-10
Off-site Transfers for Recycling and Energy Recovery of NPRI-listed, *CEPA*-toxic and Carcinogenic Substances in 1999 - *(all data)*



Total Off-site Transfers for Recycling and Energy Recovery: 19 731 tonnes

7.4.1 Off-site Transfers for Recycling and Energy Recovery of NPRI-listed, *CEPA*-toxic and Carcinogenic Substances in 1999 – 10 Substances Transferred in the Largest Quantities

Table 7-6 shows the *CEPA*-toxic and carcinogenic substances transferred off site for recycling and energy recovery in the largest quantities in 1999.

The five substances transferred off site for recycling and energy recovery in the largest quantities in 1999 were:

1. Lead (and its compounds) - 12 901 tonnes
2. Nickel (and its compounds) - 4 331 tonnes
3. Arsenic (and its compounds) - 709 tonnes
4. Dichloromethane - 528 tonnes
5. Calcium fluoride - 343 tonnes

Calcium fluoride was added to the NPRI for 1999. More than 75% (or 260 tonnes) of the calcium fluoride was transferred off site for recycling as inorganic materials and 'other recovery, reuse and recycling activities' by two facilities – Aluminerie Lauralco Inc., Usine de Deschambault (NPRI #4782) and Aluminerie de Bécancour Inc. (NPRI #1071).

By comparison, in 1998 the following substances were transferred off site for recycling in the largest quantities:

1. Lead (and its compounds) - 15 366 tonnes
2. Nickel (and its compounds) - 5 551 tonnes
3. Arsenic (and its compounds) - 708 tonnes
4. Dichloromethane - 466 tonnes
5. Tetrachloroethylene - 253 tonnes

Notable changes in 1999 were in off-site transfers for recycling and energy recovery of lead and nickel (and their compounds):

- Transfers of lead (and its compounds) decreased 2 465 tonnes (or 16%), mostly attributable to one facility that reported transfers of 5 304 tonnes in 1998 but did not submit data in 1999 – Raw Materials Corporation (NPRI #5758).
- Transfers of nickel (and its compounds) dropped 1 220 tonnes (or 22%) in 1999, mainly because five facilities reduced or eliminated recycling activities.

TABLE 7-6
OFF-SITE TRANSFERS FOR RECYCLING AND ENERGY RECOVERY OF NPRI-LISTED, *CEPA*-TOXIC AND CARCINOGENIC SUBSTANCES IN 1999 – 10 SUBSTANCES TRANSFERRED IN THE LARGEST QUANTITIES - (TONNES) - *(ALL DATA)*

CAS #	Substance	Energy Recovery	Solvents	Organics	Metals	Inorganics	Acids or Bases	Catalysts	Pollution Abatement Residues	Used Oil	Other	Total
N/A	Lead (and its compounds)	18.866	0.000	0.000	12 144.133	4.526	0.000	0.000	26.675	0.000	706.376	12 900.576
N/A	Nickel (and its compounds)	0.000	0.000	0.000	3 914.835	8.404	0.000	301.777	4.357	0.183	101.486	4 331.042
N/A	Arsenic (and its compounds)	0.000	0.000	0.000	632.262	62.759	0.000	0.000	1.631	0.000	11.855	708.507
75-09-2	Dichloromethane	405.606	121.900	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	527.506
7789-75-5	Calcium fluoride	0.000	0.000	0.000	1.826	191.700	0.000	0.000	0.000	0.000	149.200	342.726
127-18-4	Tetrachloroethylene	141.188	144.299	12.100	0.000	0.000	0.000	0.000	0.000	0.000	0.265	297.852
N/A	Cadmium (and its compounds)	6.000	0.000	0.000	194.264	0.157	0.000	0.000	0.000	0.000	0.003	200.424
71-43-2	Benzene	152.184	0.000	2.952	0.000	0.000	0.000	0.000	0.000	0.086	0.835	156.057
79-01-6	Trichloroethylene	77.354	69.826	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7.520	154.700
117-81-7	*Bis*(2-ethylhexyl) phthalate	1.135	0.867	0.884	0.000	0.000	0.000	0.000	0.000	0.000	34.505	37.391
Total Largest Off-site Transfers for Recycling		802.333	336.892	15.936	16 887.320	267.546	0.000	301.777	32.663	0.269	1 012.045	19 656.781
National Total - Off-site Transfers for Recycling		825.821	337.240	20.913	16 921.588	267.546	0.000	301.777	32.663	0.269	1 023.235	19 731.052
% of National Total		97.2	99.9	76.2	99.8	100.0	0.0	100.0	100.0	100.0	98.9	99.6

TABLE 7-6
OFF-SITE TRANSFERS FOR RECYCLING AND ENERGY RECOVERY OF NPRI-LISTED, *CEPA*-TOXIC AND CARCINOGENIC SUBSTANCES IN 1999 – 10 SUBSTANCES TRANSFERRED IN THE LARGEST QUANTITIES - (TONNES) - *(ALL DATA)*

CAS #	Substance	Energy Recovery	Solvents	Organics	Metals	Inorganics	Acids or Bases	Catalysts	Pollution Abatement Residues	Used Oil	Other	Total
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N/A	Arsenic (and its compounds)	0.000	0.000	0.000	632.262	62.759	0.000	0.000	1.631	0.000	11.855	708.507
75-09-2	Dichloromethane	405.606	121.900	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	527.506
7789-75-5	Calcium fluoride	0.000	0.000	0.000	1.826	191.700	0.000	0.000	0.000	0.000	149.200	342.726
127-18-4	Tetrachloroethylene	141.188	144.299	12.100	0.000	0.000	0.000	0.000	0.000	0.000	0.265	297.852
N/A	Cadmium (and its compounds)	6.000	0.000	0.000	194.264	0.157	0.000	0.000	0.000	0.000	0.003	200.424
71-43-2	Benzene	152.184	0.000	2.952	0.000	0.000	0.000	0.000	0.000	0.086	0.835	156.057
79-01-6	Trichloroethylene	77.354	69.826	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7.520	154.700
117-81-7	*Bis*(2-ethylhexyl) phthalate	1.135	0.867	0.884	0.000	0.000	0.000	0.000	0.000	0.000	34.505	37.391
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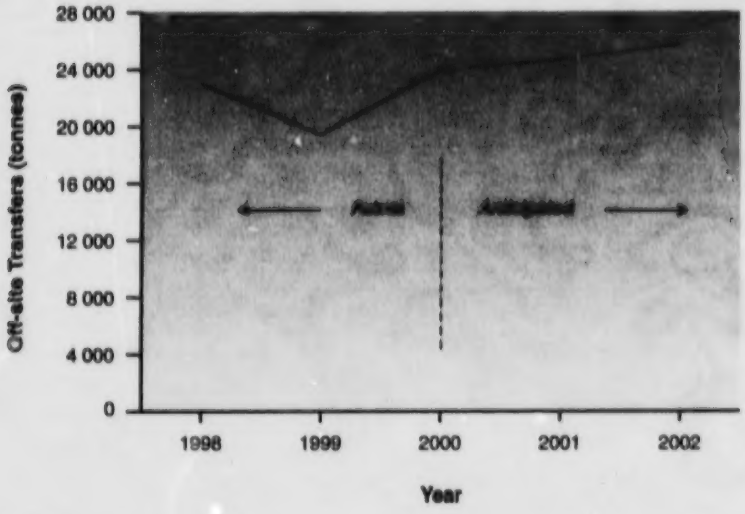
% of National Total		97.2	99.9	76.2	99.8	100.0	0.0	100.0	100.0	100.0	98.9	99.6

7.4.2 Anticipated Off-site Transfers for Recycling and Energy Recovery of NPRI-listed, *CEPA*-toxic and Carcinogenic Substances (2000-2002)

As noted in section 7.2.3, facilities were required to provide projected estimates for off-site transfers for recycling and energy recovery for the next three years (2000-2002).

Figure 7-11 shows reported off-site transfers for recycling and energy recovery of *CEPA*-toxic and carcinogenic substances for 1998, 1999 and projected amounts for 2000 through 2002, as reported in 1999, for matched data only (see definition of matched data in section 3.3).

Figure 7-11
Actual and Anticipated Off-site Transfers for Recycling and Energy Recovery of NPRI-listed, *CEPA*-toxic and Carcinogenic Substances (1998-2002) - *(matched data)*



7.4.3 Changes in Off-site Transfers for Recycling and Energy Recovery of NPRI-listed, *CEPA*-toxic and Carcinogenic Substances (1998-1999)

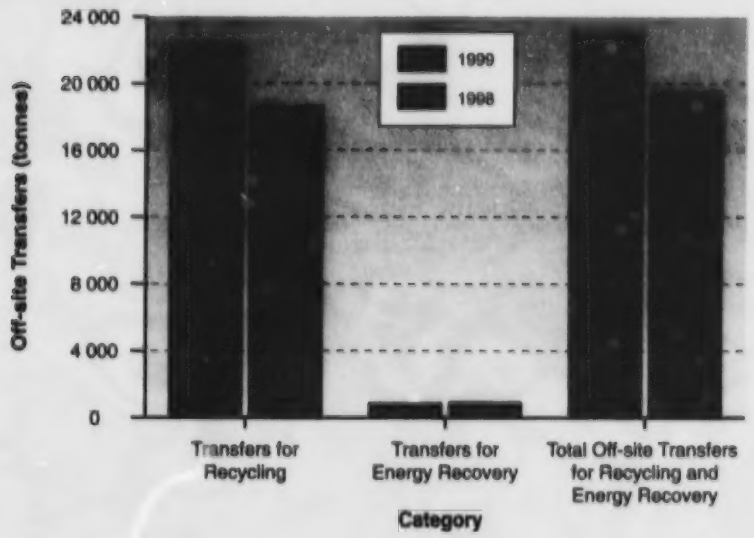
For the reasons noted in sections 6.4 and 7.2.4, an analysis based on the matched data set was performed for 1998 and 1999 only. For 1999, the matched data set represented:

- 92.2% of 859 facilities reporting *CEPA*-toxic and carcinogenic pollutants
- 89.1% of 1 286 *CEPA*-toxic and carcinogenic pollutant reports
- 61.0% of 41 *CEPA*-toxic and carcinogenic pollutants for which a report was submitted to the NPRI
- 98.2% of the total off-site transfers for recycling and energy recovery of *CEPA*-toxic and carcinogenic substances (19 731 tonnes)

The following trends can be observed:

- In 1999, total off-site transfers for recycling and energy recovery of *CEPA*-toxic and carcinogenic substances in Canada were 3 610 tonnes (or 15.7%) lower than in 1998.
- Transfers for recycling totalled 18 558 tonnes in 1999, a decrease of 16.5% from 1998, while transfers for energy recovery increased 7.4% to 826 tonnes.

Figure 7-12
Changes in Off-site Transfers for Recycling and Energy Recovery of NPRI-listed, *CEPA*-toxic and Carcinogenic Substances (1998-1999) - *(matched data)*



8. Pollution Prevention in Canada

Facilities have been required to report their pollution-prevention (P2) activities for NPRI-listed substances since 1997 (see section 2.9). This is the third year that the federal government has been able to track the progress of P2 in industry and that companies have been able to demonstrate their activities in this area to the public. With the March 31, 2000, proclamation of the new *Canadian Environmental Protection Act, 1999 (CEPA, 1999)* with P2 as its cornerstone, the introduction of P2 activities across all sectors and business functions will take even more precedence in environmental protection in coming reporting years.

Qualitative reporting provides limited basic information on P2 activity in Canada. The type of information provided by facilities from 1997 to 1999, indicates ***if*** P2 activity has occurred in reporting facilities, but does not indicate ***to what extent*** (i.e., frequency, comprehensiveness), the P2 activity was implemented within the facility. Qualitative data also do not provide answers to ***how much effect*** P2 efforts are having on the generation of pollutants and waste.

8.1 Overview of P2 Activities Reported in Canada

For reasons noted in section 4.5, analyses based on a matched data set (1997-1999) were performed (see definition of matched data in section 3.3).

For matched data, the percentage of facilities reporting some P2 activity has remained relatively constant over the past three reporting years:

- In 1999, 80.4% of facilities reported some P2 activity.
- In 1998, 80.3% of facilities reported some P2 activity.
- In 1997, 77.4% of facilities reported some P2 activity.

Approximately one third of all P2 activity reported in 1999 was in the form of 'good operating practices or training' (see Figure 8-1). 'Spill and leak prevention' is the second most popular approach at 18%. This is consistent with reports from 1997 and 1998.

TABLE 8-1
CHANGE IN RELATIVE DISTRIBUTION OF P2 ACTIVITIES IN CANADA (1997-1999) - *(MATCHED DATA)*

Activity	1997	1998	1999
Materials or Feedstock Substitution	3.1%	2.8%	2.4%
Product Design or Reformulation	3.8%	3.4%	3.6%
Equipment or Process Modifications	9.5%	10.2%	9.6%
Spill or Leak Prevention	15.4%	16.0%	17.6%
On-site Recovery, Reuse or Recycling	9.9%	10.7%	10.9%
Inventory Management or Purchasing Techniques	7.4%	7.0%	6.5%
Good Operating Practice or Training	28.7%	30.3%	31.6%
Other	3.9%	3.5%	2.8%
No P2 Activity	18.2%	16.1%	15.1%

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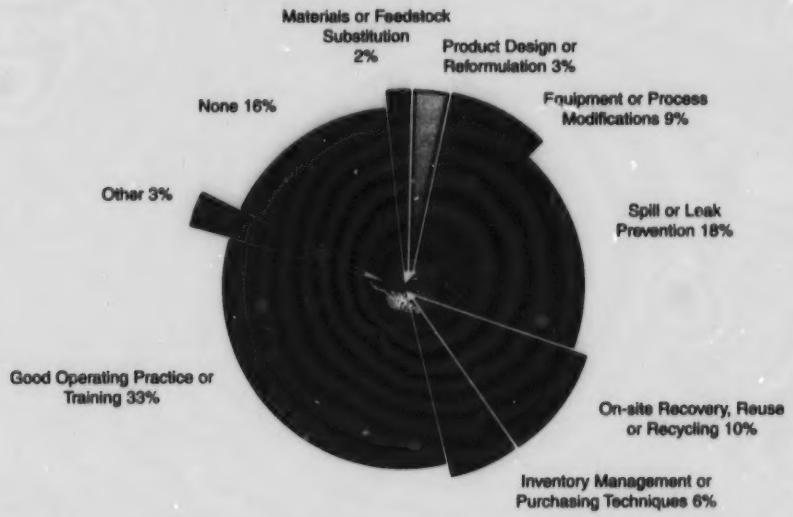
Other	3.9%	3.5%	2.8%
No P2 Activity	18.2%	16.1%	15.1%

Between 1997 and 1999, the relative distribution of most P2 approaches has remained constant, with a notable drop in the number of facilities reporting no P2 activity, offset by a rise in the use of 'good operating practices or training', and 'spill and leak prevention' (see Table 8-1).

Although the purpose of P2 is to reduce or eliminate pollution at the source, it is still not being reported by many facilities as a reason for change in releases or transfers. Table 8-2 shows that while the percentage has been on the decline, since 1997, for on-site releases and off-site transfers for disposal, it has risen for off-site transfers for recycling. It should be noted that reporting of transfers for recycling has only been mandatory since 1998, which could have had an effect on that trend.

Table 8-3 shows P2 activity across industry sectors where more than 10 facilities reported to the NPRI. For almost 90% of these sectors, more than 70% of their reporting facilities recorded P2 activities and some degree of P2 activity occurred in all sectors.

Figure 8-1
Relative Distribution of P2 Activities in Canada in 1999 - *(all data)*


Materials or Feedstock Substitution 2%
Product Design or Reformulation 3%
Equipment or Process Modifications 9%
Spill or Leak Prevention 18%
On-site Recovery, Reuse or Recycling 10%
Inventory Management or Purchasing Techniques 6%
Good Operating Practice or Training 33%
Other 3%
None 16%

Total P2 Activities: 14 943 activities

TABLE 8-2
CHANGE IN FREQUENCY OF P2 REPORTED AS A REASON FOR CHANGE IN ON-SITE RELEASES, OFF-SITE TRANSFERS FOR DISPOSAL AND OFF-SITE TRANSFERS FOR RECYCLING (1997-1999) - *(MATCHED DATA)*

Area of Change	1997	1998	1999
On-site Releases	8.9%	8.4%	8.2%
Off-site Transfers for Disposal	7.2%	6.2%	5.5%
Off-site Transfers for Recycling	3.4%	4.3%	4.5%

Many facilities provided further details of their P2 initiatives in the form of comments. These comments help to explain the nature of the P2 activities implemented. Some samples of these comments are provided below:

- Domtar Inc., Domtar, Eddy Specialty Papers (NPRI #3185) reported that "The Espanola mill achieved 100% Elemental Chlorine Free (ECF) status as of the fall of 1999 with the elimination of elemental chlorine in our softwood bleach plant. Our hardwood line was converted to ozone bleaching in the fall of 1998 (100% ECF)."

  On a similar note, Repap New Brunswick Inc., Kraft Pulp and Paper Division (NPRI #1617) reported that "Due to customer demand, elemental chloride free pulp production is occurring on a more frequent basis."
- Palliser Furniture Ltd., DeFehr Division (NPRI #1866) reported that "Lacquer overspray is captured and recycled for use as sealer coating, replacing proprietary sealer which had higher solvent content, principal amongst which was toluene. Palliser continues to explore other recycling opportunities."
- Johns Manville Canada Inc., Innisfail Plant (NPRI #2630) reported that "We monitor and adjust our process to decrease the release of ammonia. We also research new systems that will not require the use of urea and ammonium sulfate, the source of our ammonia. We recycle and reuse all our process water to minimize any release of ammonia from that media." The company also reported that it "works with its resin supplier to provide new resins with lower free formaldehyde quantities. We ensure that our resin inventory is only what is needed and do not have any waste due to exceeding shelf life."
- Ashland Canada Inc., Drew Chemical Ltd. (NPRI #0249) reported that "All rinse water is recycled into new batches. Also, any off-specification product is reworked into new batches. The facility keeps only a 60-day on-hand inventory."
- Waterloo Furniture Components Ltd., Manitou Plant (NPRI #5741) has reported that "By changing our chemistry, we were able to extend the bath life of our chrome immersion coating tank, resulting in less down time and more production time. Achieved a savings of $20,000/year and a reduction in chemistry of 816 kg/year (or 45%)."

TABLE 8-2
CHANGE IN FREQUENCY OF P2 REPORTED AS A REASON FOR CHANGE IN ON-SITE RELEASES, OFF-SITE TRANSFERS FOR DISPOSAL AND OFF-SITE TRANSFERS FOR RECYCLING (1997-1999) - *(MATCHED DATA)*

Area of Change	1997	1998	1999
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TABLE 8-3
FACILITIES REPORTING SOME P2 ACTIVITY IN 1999, BY INDUSTRIAL SECTOR (WHERE MORE THAN 10 REPORTS WERE SUBMITTED) - *(ALL DATA)*

SIC Code	Industrial Sector	Number of Activity Reports Submitted	Facilities Reporting some P2 Activity
06	Mining Industries	264	84.8%
07	Crude Petroleum and Natural Gas Industries	764	86.1%
09	Service Industries Incidental to Mineral Extraction	22	100.0%
10	Food Industries	204	83.0%
11	Beverage Industries	42	89.2%
15	Rubber Products Industries	86	81.5%
16	Plastic Products Industries	272	89.8%
17	Leather and Allied Products Industries	24	8.3%
18	Primary Textile Industries	15	96.2%
19	Textile Products Industries	22	86.8%
25	Wood Industries	235	93.7%
26	Furniture and Fixture Industries	71	84.1%
27	Paper and Allied Products Industries	616	70.1%
28	Printing, Publishing and Allied Industries	63	83.8%
29	Primary Metal Industries	686	85.7%
30	Fabricated Metal Products Industries (except Machinery and Transportation Equipment Industries)	567	85.3%
31	Machinery Industries (except Electrical Machinery)	51	88.1%
32	Transportation Equipment Industries	637	80.6%
33	Electrical and Electronic Products Industries	175	89.9%
35	Non-metallic Mineral Products Industries	127	85.2%
36	Refined Petroleum and Coal Products Industries	482	74.9%
37	Chemical and Chemical Products Industries	2101	86.3%
39	Other Manufacturing Industries	211	85.9%
41	Industrial and Heavy (Engineering) Construction Industries	59	90.8%
45	Transportation Industries	54	100.0%
46	Pipeline Transport Industries	12	50.0%
49	Other Utility Industries	300	72.2%
55	Motor Vehicle, Parts and Accessories Industries, Wholesale	40	97.6%
56	Metals, Hardware, Plumbing, Heating and Building Materials Industries, Wholesale	22	96.0%
59	Other Products and Industries, Wholesale	92	98.1%
63	Automotive Vehicles, Parts and Accessories, Sales and Service	12	70.6%
77	Business Service Industries	93	30.3%
83	Local Government Service Industries	22	53.3%
99	Other Service Industries	100	93.4%

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46	Pipeline Transport Industries	12	50.0%
49	Other Utility Industries	300	72.2%
55	Motor Vehicle, Parts and Accessories Industries, Wholesale	40	97.6%
56	Metals, Hardware, Plumbing, Heating and Building Materials Industries, Wholesale	22	96.0%
59	Other Products and Industries, Wholesale	92	98.1%
63	Automotive Vehicles, Parts and Accessories, Sales and Service	12	70.6%
77	Business Service Industries	93	30.3%
83	Local Government Service Industries	22	53.3%
99	Other Service Industries	100	93.4%

- Kemira Chemicals Canada Inc., Maitland Site (NPRI #5816) reported that "Prior to 1999 the plant utilized an NPRI substance (approx. 2000 kg/year formic acid) to conduct a routine reducing step in the preparation of plant catalyst. Test work in late 1998 and early 1999 permitted a switch to a non-listed substance and eliminated the need to use formic acid. The new material is not toxic or corrosive and is easier to handle by plant operators. Formic acid consumption has now been reduced to zero."
- Dana Canada Inc., Spicer Driveshaft Division - Thorold Plant (NPRI #0376) reported that "Spill response training was provided for all employees. Training was provided for the plant internal fire brigade, sweepers, oiler and supervisors. The spill control equipment is audited during monthly safety tour inspections."
- Intertec Systems, St. Marys Facility (NPRI #2390) reported that "Part of our operator training involves the awareness of environmental impact and costs of waste, as well as how to avoid waste generation by best practices."

9. Comparison to Other Release Sources

9.1 Overview of Other Release Sources

The NPRI currently collects pollutant release and transfer information from a broad range of industrial and non-industrial sectors, including chemical distribution systems, government services facilities, industrial sectors, processing plants, and recovery and recycling operations. There are many other release sources which are not currently captured under the NPRI.

The intent of this section is to provide context for the NPRI information presented in this National Overview. Other sources of environmental data may include information collected by other programs within Environment Canada, as well as other estimated release sources.

This section provides pollutant-release information from other emission inventories and initiatives such as criteria air contaminants and greenhouse gases, and the Accelerated Reduction/Elimination of Toxics (ARET) initiative.

9.2 Greenhouse Gases

The national inventory of greenhouse gases (GHG) was compiled to meet Canada's commitment to the United Nations' Framework Convention on Climate Change. Releases of GHG, in particular carbon dioxide, were estimated based on energy-use information provided by Statistics Canada. The Statistics Canada data were supplemented by additional information provided by the provinces, territories, industrial associations and individual companies. In addition, Environment Canada conducted field studies and gathered measurements for selected sources. GHG include:

- Carbon dioxide (CO_2)
- Methane (CH_4)
- Nitrous oxide (N_2O)
- Perfluorocarbons: carbon tetrachloride (CF_4), carbon hexafluoride (C_2F_6)
- Hydrofluorocarbons (HFCs): HFC-23, HFC-32, HFC-125, HCF-134a, HFC-143a, HFC-152a, HFC-227ea
- Sulphur hexafluoride (SF_6)

The most recent version of this inventory (1998) is presented in Table 9-1. More information regarding the federal government's GHG program and inventory can be accessed through Environment Canada's Web site at <www.ec.gc.ca/pdb/>.

TABLE 9-1
GREENHOUSE GAS EMISSIONS IN CANADA IN 1998 - (KILOTONNES)

Sector	Carbon Dioxide (CO_2)*	Methane (CH_4)**	Nitrous Oxide (N_2O)**	HFCs, PFCs and SF_6**
Energy	**490 000**	**44 000**	**11 000**	**7 900**
Energy Industries[1]	195 000	39 000	1 000	
Transportation[2]	174 000	525	8 680	
Residential, Commercial & Institutional	65 251	4 500	930	
Manufacturing & Construction	53 100	36	500	
Agriculture & Forestry	2 590	10	12	
Industrial Processes	**38 100**	**0**	**5 800**	
Cement, Lime Production; Soda Ash, Limestone Use	8 360	0	0	
Ammonia Production	3 898	0	0	
Iron & Steel Production	8 316	0	0	
Aluminum Production	3 817	0	0	6 000
Undifferentiated Production[3]	13 700	0	0	500
Nitric and Adipic Acid Production			5 800	
Magnesium Production	0	0	0	1 400
Solvents	**0**	**0**	**460**	
Agriculture	**875**	**23 000**	**46 000**	
Soils	875	0	41 000	
Enteric Fermentation	0	18 000	0	
Manure Management	0	5 100	5 100	
Waste	**277**	**22 000**	**1 000**	
Landfills	0	22 000	0	
Wastewater Handling	0	400	1 000	
Incineration	277	7	60	
Land Use, Land Use Change & Forestry	**[-20 000]**	**880**	**870**	
Prescribed Burns	0	880	870	
Carbon Cycle[4] [net removal]	[-20 000]	0	0	
Total	**509 300**	**89 900**	**65 100**	**15 800**

1 Energy Industries are the (IPCC) Energy Production and Transformation Industries: coal, oil & gas production, refining & transmission; electricity & steam production

2 Transportation: air, road, rail, marine, off-road & pipeline transport

3 Undifferentiated Production: non-energy use of fossil fuel products such as lubricants, asphalt and chemicals

4 Carbon dioxide (CO_2) from land use change and forestry is not included in inventory totals

* kilotonnes of CO_2

** kilotonnes of CO_2 equivalent

TABLE 9-1
GREENHOUSE GAS EMISSIONS IN CANADA IN 1998 - (KILOTONNES)

Sector	Carbon Dioxide (CO_2)*	Methane (CH_4)**	Nitrous Oxide (N_2O)**	HFCs, PFCs and SF_6**
Energy	**490 000**	**44 000**	**11 000**	**7 900**
Energy Industries[1]	195 000	39 000	1 000	
Transportation[2]	**174 000**	**525**	**8 500**	
Residential, Commercial & Institutional	65 251	4 500	930	
Manufacturing & Construction	**53 100**	**36**	**500**	
Agriculture & Forestry	2 590	10	12	
Industrial Processes	**38 100**	**0**	**5 800**	
Cement, Lime Production; Soda Ash, Limestone Use	8 360	0	0	
Ammonia Production	**3 808**	**0**	**0**	
Iron & Steel Production	8 316	0	0	
Aluminum Production	**3 817**	**0**	**0**	**6 000**
Undifferentiated Production[3]	13 700	0	0	500
Nitric and Adipic Acid Production			**5 800**	
Magnesium Production	0	0	0	1 400
Solvents	**0**	**0**	**460**	
Agriculture	**875**	**23 000**	**46 000**	
Soils	875	0	41 000	
Enteric Fermentation	**0**	**18 000**	**0**	
Manure Management	0	5 100	5 100	
Waste	**277**	**22 000**	**1 000**	
Landfills	0	22 000	0	
Wastewater Handling	**0**	**400**	**1 000**	
Incineration	277	7	60	
Land Use, Land Use Change & Forestry	**[-20 000]**	**880**	**870**	
Prescribed Burns	0	880	870	
Carbon Cycle[4] [net removal]	**[-20 000]**	**0**	**0**	
Total	**509 300**	**89 900**	**65 100**	**15 800**

1 Energy Industries are the (IPCC) Energy Production and Transformation Industries: coal, oil & gas production, refining & transmission; electricity & steam production

2 Transportation: air, road, rail, marine, off-road & pipeline transport

3 Undifferentiated Production: non-energy use of fossil fuel products such as lubricants, asphalt and chemicals

4 Carbon dioxide (CO_2) from land use change and forestry is not included in inventory totals

* kilotonnes of CO_2

** kilotonnes of CO_2 equivalent

9.3 Criteria Air Contaminants

Environment Canada and the provincial and territorial Ministers of the Environment have updated the national emissions inventory of Criteria Air Contaminants (CAC). This inventory estimates emissions from more than 60 industrial and non-industrial activities for the following contaminants:

- Sulphur oxides (SOx)
- Nitrogen oxides (NOx)
- Volatile organic compounds (VOCs)
- Total suspended particulates (TSP)
- Carbon monoxide (CO)
- Fine particulates (PM_{10} and $PM_{2.5}$)

The CAC inventory supports a number of national and international programs including the Ambient Air Quality Criteria, the Convention on Long-Range Transboundary Air Pollution, the NOx/VOC Management Plan and the Canada-U.S. Air Quality Agreement.

A summary of the 1995 CAC emissions inventory for point sources, area sources, natural sources, and biogenic sources in Canada was provided in Appendix 4 of the *National Pollutant Release Inventory – Summary Report 1997* and will not be reported here. The *1995 Criteria Air Contaminants Inventory Report* is available on Environment Canada's Web site at <www.ec.gc.ca/pdb>. Environment Canada is currently working with the provinces and territories to assemble the 2000 CAC Inventory.

Improved calculation methods were used in the 1995 emissions inventory; only the sulphur oxides emissions can be compared to earlier versions. More information and further updates are available through Environment Canada's Web site at <www.ec.gc.ca/pdb/>.

9.4 Accelerated Reduction/Elimination of Toxics (ARET)

The ARET program is a voluntary, multi-stakeholder initiative, co-managed by the federal government and industry, in participation with 303 facilities from 162 companies. This program's latest annual report, *Environmental Leaders 3*, was released in April 1999.

The report provides details on emission reductions, achieved through voluntary measures, of 117 toxic chemicals including chlorine dioxide, zinc, polycyclic aromatic hydrocarbons (PAHs), benzene, formaldehyde, lead and copper. Results are shown by substance, facility, company and sector.

The report shows that participating organizations, from nine key industrial sectors and four federal departments, have reduced emissions of substances included in the ARET program by 24 099 tonnes (or -64%) from base-year levels. Since 1996, reported emissions have decreased by 3 010 tonnes (or -18%). Nearly one-half of the participating facilities have already met short-term targets for all substance categories for which they report. Year 2000 targets have been met or exceeded for 54% of ARET substances being reported.

Environmental Leaders 3 is available from Environment Canada's Inquiry Center at 1-800-668-6767 or through Environment Canada's Web site at <www.ec.gc.ca/aret/reports>.

10. Supplementary Tables and Analyses

Supplementary tables that complement the 1999 National Overview are available electronically in Adobe® Acrobat PDF format through the NPRI Web site at <www.ec.gc.ca/pdb/npri>, or paper copies can be requested from an NPRI office.

These tables include:

Supplementary Table 1: List of Facilities Reporting to the NPRI in 1999 – This table provides a complete, alphabetical listing of all facilities across Canada that reported to the NPRI in 1999. Included are the facilities' NPRI identification number, two-digit Standard Industrial Classification (SIC) code, company name, facility name and location. Companies granted confidential status upon their request are included in this table.

Supplementary Table 2: On-site Releases in 1999, by Pollutant - (*all data*) – This table provides an analysis of the industrial sectors that reported on-site releases of NPRI pollutants in 1999. A number of pollutants are reported as 'zero tonnes' released on site. This information has been provided to illustrate that, for some sectors, NPRI pollutants were manufactured, processed or otherwise used in quantities greater than 10 tonnes and at a concentration equal to or greater than 1% by weight, but no release was reported. In these cases, facilities were required to submit a report to the NPRI because they met all reporting criteria, despite reporting 'zero tonnes' for on-site releases.

Supplementary Table 3: NPRI Pollutants Released On Site in 1999, by Industrial Sector - (*all data*) – This supplementary table provides an analysis of the on-site releases of NPRI pollutants in 1999, reported by industrial sector. Releases of a number of pollutants are reported as 'zero tonnes'. This information has been provided to illustrate that, for some sectors, NPRI pollutants were manufactured, processed or otherwise used in quantities greater than 10 tonnes and at a concentration equal to or greater than 1% by weight, but no release was reported. In these cases, facilities were required to submit a report to the NPRI because they met the reporting criteria, even though they were reporting on-site releases of 'zero tonnes'.

Supplementary Table 4: Off-site Transfers for Disposal in 1999, by Pollutant - (*all data*) – This table provides an analysis of the industrial sectors which reported off-site transfers for disposal of NPRI pollutants in 1999. A number of pollutants are reported as 'zero tonnes' transferred off site for disposal. This information has been provided to illustrate that, for some sectors, NPRI pollutants were manufactured, processed or otherwise used in quantities greater than 10 tonnes and at a concentration equal to or greater than 1% by weight, but no off-site transfer was reported. In these cases, facilities were required to submit a report to the NPRI because they met all reporting criteria, despite reporting 'zero tonnes' for off-site transfers for disposal.

Supplementary Table 5: NPRI Pollutants Transferred Off Site for Disposal in 1999, by Industrial Sector - (*all data*) – This table provides an analysis of off-site transfers for disposal of NPRI pollutants in 1999, reported by industrial sector. Transfers for disposal of a number of pollutants are reported as 'zero tonnes'. This information has been provided to illustrate that, for some sectors, NPRI pollutants were manufactured, processed or otherwise used in quantities greater than 10 tonnes and at a concentration equal to or greater than 1% by weight, but no transfer was reported. In these cases, facilities were required to submit a report to the NPRI because they met the reporting criteria, even though they were reporting off-site transfers for disposal of 'zero tonnes'.

Supplementary Table 6: Off-site Transfers for Recycling and Energy Recovery in 1999, by Substance - (*all data*) – This table provides an analysis of the industrial sectors which reported off-site transfers for recycling and energy recovery of NPRI substances in 1999. A number of substances are reported as 'zero tonnes' transferred off site for recycling and energy recovery. This information has been provided to illustrate that, for some sectors, NPRI substances were manufactured, processed or otherwise used in quantities greater than 10 tonnes and at a concentration equal to or greater than 1% by weight, but no off-site transfer was reported. In these cases, facilities were required to submit a report to the NPRI because they met all reporting criteria, despite reporting 'zero tonnes' for off-site transfers for recycling and energy recovery.

Other analyses or reports prepared by Environment Canada will be available on the NPRI Web site at <www.ec.gc.ca/pdb/npri>.

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Additional References

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Web site: www.hc-sc.gc.ca/ehd/catalogue/index.htm

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National Library of Medicine (TOXNET)
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Tel.: (301) 496-6531
Fax: (301) 480-3537
Web site: www.nlm.nih.gov/hinfo.html

Appendix 1 – Alphabetical Listing of NPRI Substances for 1999

NOTE: Substances added to the NPRI for the 1999 reporting year, are in bold lettering.

NAME	CAS No.[1]
Acetaldehyde	75-07-0
Acetonitrile	75-05-8
Acetophenone	**98-86-2**
Acrylamide	79-06-1
Acrylic acid [2]	79-10-7
Acrylonitrile	107-13-1
Alkanes, C_{6-19}, chloro	**68920-70-7**
Alkanes, C_{10-13}, chloro	**85535-84-8**
Allyl alcohol	107-18-6
Allyl chloride	107-05-1
Aluminum [3]	7429-90-5
Aluminum oxide [4]	1344-28-1
Ammonia (total) [5]	*
Aniline [2]	62-53-3
Anthracene	120-12-7
Antimony [6]	*
Arsenic [6]	*
Asbestos [7]	1332-21-4
Benzene	71-43-2
Benzoyl chloride	98-88-4
Benzoyl peroxide	94-36-0
Benzyl chloride	100-44-7
Biphenyl	92-52-4
Bis(2-ethylhexyl) adipate	103-23-1
Bis(2-ethylhexyl) phthalate	117-81-7
Boron trifluoride	**7637-07-2**
Bromine	**7726-95-6**
1-Bromo-2-chloroethane	**107-04-0**
Bromomethane	74-83-9
1,3-Butadiene	106-99-0
2-Butoxyethanol	**111-76-2**
Butyl acrylate	141-32-2
i-Butyl alcohol	78-83-1
n-Butyl alcohol	71-36-3
sec-Butyl alcohol	78-92-2
tert-Butyl alcohol	75-65-0
Butyl benzyl phthalate	85-68-7
1,2-Butylene oxide	106-88-7
Butyraldehyde	123-72-8
C.I. Acid Green 3	4680-78-8
C.I. Basic Green 4	569-64-2
C.I. Basic Red 1	989-38-8
C.I. Direct Blue 218	**28407-37-6**
C.I. Disperse Yellow 3	2832-40-8
C.I. Food Red 15	81-88-9
C.I. Solvent Orange 7	3118-97-6
C.I. Solvent Yellow 14	842-07-9
Cadmium [6]	*
Calcium cyanamide	156-62-7
Calcium fluoride	**7789-75-5**
Carbon disulphide	75-15-0
Carbon tetrachloride	56-23-5
Catechol	120-80-9
CFC-11	**75-69-4**
CFC-12	**75-71-8**
CFC-13	**75-72-9**
CFC-114	**76-14-2**
CFC-115	**76-15-3**
Chlorendic acid	**115-28-6**
Chlorine	7782-50-5
Chlorine dioxide	10049-04-4
Chloroacetic acid [2]	79-11-8
Chlorobenzene	108-90-7
Chloroethane	75-00-3
Chloroform	67-66-3
Chloromethane	74-87-3
3-Chloro-2-methyl-1-propene	**563-47-3**
3-Chloropropionitrile	**542-76-7**
Chromium [6]	*
Cobalt [6]	*
Copper [6]	*
Cresol [2,8]	1319-77-3
m-Cresol [2]	108-39-4
o-Cresol [2]	95-48-7
p-Cresol [2]	106-44-5
Crotonaldehyde	**4170-30-3**
Cumene	98-82-8
Cumene hydroperoxide	80-15-9
Cyanides [9]	*
Cyclohexane	110-82-7
Cyclohexanol	**108-93-0**
Decabromodiphenyl oxide	1163-19-5
2,4-Diaminotoluene [2]	95-80-7
2,6-Di-*t*-butyl-4-methylphenol	**128-37-0**
Dibutyl phthalate	84-74-2
o-Dichlorobenzene	95-50-1
p-Dichlorobenzene	106-46-7
3,3'-Dichlorobenzidine dihydrochloride	**612-83-9**
1,2-Dichloroethane	107-06-2
Dichloromethane	75-09-2
2,4-Dichlorophenol [2]	120-83-2
1,2-Dichloropropane	78-87-5
Dicyclopentadiene	**77-73-6**
Diethanolamine [2]	111-42-2
Diethyl phthalate	84-66-2
Diethyl sulphate	64-67-5
Dimethylamine	**124-40-3**
N,N-Dimethylaniline [2]	121-69-7
Dimethyl phenol	**1300-71-6**
Dimethyl phthalate	131-11-3
Dimethyl sulphate	77-78-1

NAME	CAS No.[1]
4,6-Dinitro-*o*-cresol [2]	534-52-1
2,4-Dinitrotoluene	121-14-2
2,6-Dinitrotoluene	606-20-2
Dinitrotoluene [8]	25321-14-6
Di-*n*-octyl phthalate	117-84-0
1,4-Dioxane	123-91-1
Diphenylamine	**122-39-4**
Epichlorohydrin	106-89-8
2-Ethoxyethanol	110-80-5
2-Ethoxyethyl acetate	111-15-9
Ethoxynonyl benzene	**28679-13-2**
Ethyl acrylate	140-88-5
Ethylbenzene	100-41-4
Ethyl chloroformate	541-41-3
Ethylene	74-85-1
Ethylene glycol	107-21-1
Ethylene oxide	75-21-8
Ethylene thiourea	96-45-7
Fluorine	**7782-41-4**
Formaldehyde	50-00-0
Formic acid	**64-18-6**
Halon 1211	**353-59-3**
Halon 1301	**75-63-8**
HCFC-22	**75-45-6**
HCFC-122 and all isomers [10]	**41834-16-6**
HCFC-123 and all isomers [11]	**34077-87-7**
HCFC 124 and all isomers [12]	**63938-10-3**
HCFC-141b	**1717-00-6**
HCFC-142b	**75-68-3**
Hexachlorocyclopentadiene	77-47-4
Hexachloroethane	67-72-1
Hexachlorophene	**70-30-4**
***n*-Hexane**	**110-54-3**
Hydrazine [2]	302-01-2
Hydrochloric acid	7647-01-0
Hydrogen cyanide	74-90-8
Hydrogen fluoride	7664-39-3
Hydrogen sulphide	**7783-06-4**
Hydroquinone [2]	123-31-9
Iron pentacarbonyl	**13463-40-6**
Isobutyraldehyde	78-84-2
Isophorone diisocyanate	**4098-71-9**
Isoprene	**78-79-5**
Isopropyl alcohol	67-63-0
p,p'-Isopropylidenediphenol	80-05-7
Isosafrole	120-58-1
Lead [6]	*
Lithium carbonate	**554-13-2**
Maleic anhydride	108-31-6
Manganese [6]	*
2-Mercaptobenzothiazole	**149-30-4**
Mercury [6]	*
Methanol	67-56-1
2-Methoxyethanol	109-86-4
2-Methoxyethyl acetate	110-49-6
Methyl acrylate	96-33-3
Methyl *tert*-butyl ether	1634-04-4
p,p'-Methylene*bis*(2-chloroaniline)	101-14-4
1,1-Methylene*bis* (4-isocyanatocyclohexane)	**5124-30-1**
Methylene*bis*(phenylisocyanate)	101-68-8
p,p'-Methylenedianiline	101-77-9
Methyl ethyl ketone	78-93-3
Methyl iodide	74-88-4
Methyl isobutyl ketone	108-10-1
Methyl methacrylate	80-62-6
N-Methylolacrylamide	**924-42-5**
2-Methylpyridine	**109-06-8**
N-Methyl-2-pyrrolidone	**872-50-4**
Michler's ketone [2]	90-94-8
Molybdenum trioxide	1313-27-5
Naphthalene	91-20-3
Nickel [6]	*
Nitrate ion [13]	*
Nitric acid	7697-37-2
Nitrilotriacetic acid [2]	139-13-9
***p*-Nitroaniline**	**100-01-6**
Nitrobenzene	98-95-3
Nitroglycerin	55-63-0
p-Nitrophenol [2]	100-02-7
2-Nitropropane	79-46-9
N-Nitrosodiphenylamine	86-30-6
Nonylphenol	**104-40-5**
Nonylphenol hepta (oxyethylene) ethanol	**27177-05-5**
Nonylphenol, industrial	**84852-15-3**
Nonylphenol nona (oxyethylene) ethanol	**27177-08-8**
***n*-Nonylphenol** [8]	**25154-52-3**
Nonylphenol polyethylene glycol ether	**9016-45-9**
***p*-Nonylphenol polyethylene glycol ether**	**26027-38-3**
Nonylphenoxy ethanol	**27986-36-3**
2-(*p*-Nonylphenoxy) ethanol	**104-35-8**
2-(2-(*p*-Nonylphenoxy) ethoxy) ethanol	**20427-84-3**
2-(2-(2-(2-(*p*-Nonylphenoxy) ethoxy)ethoxy)ethoxy) ethanol	**7311-27-5**
Paraldehyde	**123-63-7**
Pentachloroethane	**76-01-7**
Peracetic acid [2]	79-21-0
Phenol [2]	108-95-2
p-Phenylenediamine [2]	106-50-3
o-Phenylphenol [2]	90-43-7
Phosgene	75-44-5
Phosphoric acid	7664-38-2
Phosphorus [14]	7723-14-0
Phthalic anhydride	85-44-9
Potassium bromate	**7758-01-2**
Propargyl alcohol	**107-19-7**
Propionaldehyde	123-38-6

NAME	CAS No.[1]	NAME	CAS No.[1]
Propylene	115-07-1	Titanium tetrachloride	7550-45-0
Propylene oxide	75-56-9	Toluene	108-88-3
Pyridine [2]	110-86-1	Toluene-2,4-diisocyanate	584-84-9
Quinoline [2]	91-22-5	Toluene-2,6-diisocyanate	91-08-7
p-Quinone	106-51-4	Toluenediisocyanate [8]	26471-62-5
Safrole	94-59-7	1,2,4-Trichlorobenzene	120-82-1
Selenium [6]	*	1,1,2-Trichloroethane	79-00-5
Silver [6]	*	Trichloroethylene	79-01-6
Sodium fluoride	**7681-49-4**	**Triethylamine**	**121-44-8**
Sodium nitrite	**7632-00-0**	1,2,4-Trimethylbenzene	95-63-6
Styrene	100-42-5	**2,2,4-Trimethylhexamethylene diisocyanate**	**16938-22-0**
Styrene oxide	96-09-3		
Sulphur hexafluoride	**2551-62-4**	**2,4,4-Trimethylhexamethylene diisocyanate**	**15646-96-5**
Sulphuric acid	7664-93-9		
1,1,1,2-Tetrachloroethane	**630-20-6**	Vanadium [3]	7440-62-2
1,1,2,2-Tetrachloroethane	79-34-5	Vinyl acetate	108-05-4
Tetrachloroethylene	127-18-4	Vinyl chloride	75-01-4
Tetracycline hydrochloride	**64-75-5**	Vinylidene chloride	75-35-4
Tetraethyl lead	**78-00-2**	Xylene [8]	1330-20-7
Thiourea	62-56-6	Zinc [6]	*
Thorium dioxide	1314-20-1		

* No single CAS number applies to this NPRI listing.

1 CAS Registry Number denotes the Chemical Abstracts Service Registry Number, as appropriate.

2 "and its salts" – The CAS number corresponds to the weak acid or base. However, the NPRI listing includes the salts of these weak acids and bases. When calculating the weight of these substances and their salts, use the molecular weight of the acid or base, not the total weight of the salt.

3 "fume or dust"

4 "fibrous forms"

5 "Ammonia (total)" means the total of both of ammonia (NH_3 – CAS # 7664-41-7) and the ammonium ion (NH_4^+) in solution.

6 "and its compounds"

7 "friable form"

8 "mixed isomers"

9 "ionic"

10 The isomers include, but are not necessarily limited to, HCFC-122 (CAS # 354-21-2).

11 The isomers include, but are not necessarily limited to, HCFC-123 (CAS # 306-83-2) and HCFC 123a (CAS # 90454-18-5).

12 The isomers include, but are not necessarily limited to, HCFC 124 (CAS # 2837-89-0), and HCFC 124a (CAS # 354-25-6).

13 "in solution at a pH of 6.0 or greater"

14 "yellow or white"

Appendix 2 - Facilities Reporting the Largest On-site Releases in 1999, by Pollutant (tonnes)

Note: Information on pollutants reported to the NPRI for the first time is not presented in this appendix. Therefore, the 73 substances added to the NPRI for 1999 are not included in this list. A maximum of 10 facilities are listed for each pollutant. Facilities reporting 1999 releases of less than 0.5 tonne are not listed. Facilities reporting total releases of a pollutant to all media of less than one tonne had the option of reporting their releases by environmental medium or reporting only the total release to all media. 'Total # of Reports' includes all pollutant reports, even those indicating zero releases.

Acetaldehyde — CAS #: 75-07-0 — Total # of Reports: 40 — Total Releases (tonnes): 867.688

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
1162	Celanese Canada Inc.	Edmonton Facility	Edmonton	AB	76.770	0.000	0.000	0.000	76.770
2762	Weyerhaeuser Company Ltd.	Edson OSB	Edson	AB	68.160	0.000	0.000	0.000	68.160
5003	Weyerhaeuser Company Limited	Miramichi - OSB	Miramichi	NB	64.639	0.000	0.000	0.044	64.683
2760	Weyerhaeuser Company Ltd.	Drayton Valley OSB Mill	Drayton Valley	AB	64.570	0.000	0.000	0.000	64.570
4892	Weyerhaeuser Company Limited	Wawa OSB	Wawa	ON	47.160	0.000	0.000	0.000	47.160
2764	Weyerhaeuser Company Ltd.	Slave Lake OSB	Slave Lake	AB	38.580	0.000	0.000	0.000	38.580
3013	Norampac Inc.	Red Rock Division	Red Rock	ON	31.350	0.000	0.600	0.090	32.040
1797	Canadian Forest Products Ltd.	Northwood Pulp Mill	Prince George	BC	29.816	0.000	1.092	0.003	30.911
0930	Bowater Pulp and Paper Canada Inc.	Thunder Bay Operations	Thunder Bay	ON	27.680	0.000	0.390	0.000	28.070
2872	Western Pulp Limited Partnership		Squamish	BC	27.166	0.000	0.515	0.000	27.681

Acetonitrile — CAS #: 75-05-8 — Total # of Reports: 2 — Total Releases (tonnes): 8.300

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
1944	Bayer Inc.	Bayer Inc. Sarnia Site	Sarnia	ON	7.520	0.000	0.000	0.000	7.520
5455	Services Safety-Kleen (Québec) Ltée	Centre de transfert de Thurso	Thurso	QC	0.780	0.000	0.000	0.000	0.780

Acrylonitrile — CAS #: 107-13-1 — Total # of Reports: 10 — Total Releases (tonnes): 9.460

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
1944	Bayer Inc.	Bayer Inc. Sarnia Site	Sarnia	ON	6.860	0.000	0.000	0.000	6.860
3152	Oxford Automotive	Oxford Suspension Ltd. Wallaceburg	Wallaceburg	ON	1.325	0.000	0.000	0.000	1.325
4934	ATC Chimiques/Chemicals Inc.		Drummondville	QC	0.000	0.000	0.000	0.000	0.950

Appendix 2 - Facilities Reporting the Largest On-site Releases in 1999, by Pollutant (tonnes)

Note: Information on pollutants reported to the NPRI for the first time is not presented in this appendix. Therefore, the 73 substances added to the NPRI for 1999 are not included in this list. A maximum of 10 facilities are listed for each pollutant. Facilities reporting 1999 releases of less than 0.5 tonne are not listed. Facilities reporting total releases of a pollutant to all media of less than one tonne had the option of reporting their releases by environmental medium or reporting only the total release to all media. 'Total # of Reports' includes all pollutant reports, even those indicating zero releases.

Acetaldehyde — CAS #: 75-07-0 — Total # of Reports: 40 — Total Releases (tonnes): 867.688

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
1162	Celanese Canada Inc.	Edmonton Facility	Edmonton	AB	76.770	0.000	0.000	0.000	76.770
2762	Weyerhaeuser Company Ltd.	Edson OSB	Edson	AB	68.160	0.000	0.000	0.000	68.160
5003	Weyerhaeuser Company Limited	Miramichi - OSB	Miramichi	NB	64.639	0.000	0.000	0.044	64.683
2760	Weyerhaeuser Company Ltd.	Drayton Valley OSB Mill	Drayton Valley	AB	64.570	0.000	0.000	0.000	64.570
4892	Weyerhaeuser Company Limited	Wawa OSB	Wawa	ON	47.160	0.000	0.000	0.000	47.160
2764	Weyerhaeuser Company Ltd.	Slave Lake OSB	Slave Lake	AB	38.580	0.000	0.000	0.000	38.580
3013	Norampac Inc.	Red Rock Division	Red Rock	ON	31.350	0.000	0.600	0.090	32.040
1797	Canadian Forest Products Ltd.	Northwood Pulp Mill	Prince George	BC	29.816	0.000	1.092	0.003	30.911
0930	Bowater Pulp and Paper Canada Inc.	Thunder Bay Operations	Thunder Bay	ON	27.680	0.000	0.390	0.000	28.070
2872	Western Pulp Limited Partnership		Squamish	BC	27.166	0.000	0.515	0.000	27.681

Acetonitrile — CAS #: 75-05-8 — Total # of Reports: 2 — Total Releases (tonnes): 8.300

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
1944	Bayer Inc.	Bayer Inc. Sarnia Site	Sarnia	ON	7.520	0.000	0.000	0.000	7.520
5455	Services Safety-Kleen (Québec) Ltée	Centre de transfert de Thurso	Thurso	QC	0.780	0.000	0.000	0.000	0.780

Acrylonitrile — CAS #: 107-13-1 — Total # of Reports: 10 — Total Releases (tonnes): 9.460

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
1944	Bayer Inc.	Bayer Inc. Sarnia Site	Sarnia	ON	6.860	0.000	0.000	0.000	6.860
3152	Oxford Automotive	Oxford Suspension Ltd. Wallaceburg	Wallaceburg	ON	1.325	0.000	0.000	0.000	1.325
4934	ATC Chimiques/Chemicals Inc.		Drummondville	QC	0.000	0.000	0.000	0.000	0.950

Aluminum (fume or dust) — CAS #: 7429-90-5 — Total # of Reports: 48 — Total Releases (tonnes): 1 039.120

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
2801	Recyclage d'aluminium Québec Inc.		Baie-Comeau	QC	0.000	0.000	0.000	500.000	500.000
2799	Recyclage d'aluminium Québec Inc.		Bécancour	QC	0.000	0.000	0.000	500.000	500.000
5732	Wabash Alloys	Wabash Alloys Mississauga	Mississauga	ON	9.682	0.000	0.000	0.000	9.682
3097	Burlington Technologies Inc.	Alumetco Division	Brantford	ON	5.910	0.000	0.000	0.000	5.910
4204	Sydney Steel Corporation	Sydney Steel Corp.	Sydney	NS	0.000	0.000	0.000	3.600	3.600
4571	Canbro Inc.		Salaberry-de-Valleyfield	QC	3.000	0.000	0.000	0.000	3.000
1067	Wabash Alloys	Wabash Alloys Guelph	Guelph	ON	2.903	0.000	0.000	0.000	2.903
3907	Cominco Ltd.	Cominco Ltd. Sullivan Concentrator	Kimberley	BC	0.000	0.000	2.800	0.002	2.802
3096	Burlington Technologies Inc.	Burlington Division	Burlington	ON	2.650	0.000	0.000	0.000	2.650
1480	Indalloy, Division of Indalex Ltd.		Toronto	ON	2.430	0.000	0.000	0.000	2.430

Aluminum oxide (fibrous forms) — CAS #: 1344-28-1 — Total # of Reports: 12 — Total Releases (tonnes): 609.050

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
2537	Safety-Kleen Ltd.	Lambton Facility	Corunna	ON	0.001	0.000	0.000	360.400	360.401
3158	Atlas Steels Inc.	Atlas Specialty Steels	Welland	ON	0.000	0.000	0.000	248.148	248.148
5336	Weatherford Canada	Weatherford Completion and Oilfield Services McAllister	Calgary	AB	0.500	0.000	0.000	0.000	0.500

Ammonia (total) — CAS #: N/A — Total # of Reports: 331 — Total Releases (tonnes): 37 280.429

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
2134	Agrium Products Inc.	Redwater Fertilizer Operations	Redwater/Municipal District of Sturgeon	AB	2 566.650	1 441.630	13.160	4.640	4 026.080
2960	Shell Canada Products Limited	Shell Scotford Refinery	Fort Saskatchewan	AB	0.000	2 978.000	0.170	0.000	2 978.170
2240	City of Toronto	Ashbridges Bay (formerly Main) Sewage Treatment Plant	Toronto	ON	0.000	0.000	2 936.695	0.000	2 936.695
3821	Canadian Fertilizers Limited		Medicine Hat	AB	2 347.075	0.000	22.302	0.000	2 369.377
0770	Regional Municipality of Ottawa-Carleton	Robert O. Pickard Environmental Centre	Gloucester	ON	0.000	0.000	1 997.000	0.000	1 997.000
3903	Petro-Canada	Edmonton Refinery	Edmonton	AB	0.000	1 993.733	0.565	0.000	1 994.298
1290	General Chemical Canada Ltd.	Amherstburg Plant	Amherstburg	ON	1 885.000	0.000	97.000	0.000	1 982.000
3269	Agrium Inc.	Carseland Nitrogen Operations	Calgary	AB	1 723.400	0.000	0.000	1.400	1 724.800
4874	Agrium	Fort Saskatchewan Nitrogen Operations	Fort Saskatchewan	AB	498.400	1 123.000	0.000	0.000	1 621.400
3807	Nitrochem Corp. (formerly Hydro Agri Canada L.P.)	Nitrochem Corp. Maitland Site	Maitland	ON	1 109.000	0.000	8.350	0.000	1 117.350

Anthracene — CAS #: 120-12-7 — Total # of Reports: 14 — Total Releases (tonnes): 1.587

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
3713	Dofasco Inc.	Dofasco Hamilton	Hamilton	ON	0.650	0.000	0.000	0.000	0.650

Antimony (and its compounds) — CAS #: N/A — Total # of Reports: 35 — Total Releases (tonnes): 13.091

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
3623	Noranda Inc.	Fonderie Horne	Rouyn-Noranda	QC	5.540	0.000	0.605	0.000	6.145
3802	Cominco Ltd.	Trail Operations	Trail	BC	1.680	0.000	4.360	0.000	6.040

Aluminum (fume or dust) — CAS #: 7429-90-5 — Total # of Reports: 48 — Total Releases (tonnes): 1 039.120

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
2801	Recyclage d'aluminium Québec Inc.		Baie-Comeau	QC	0.000	0.000	0.000	500.000	500.000
2799	Recyclage d'aluminium Québec Inc.		Bécancour	QC	0.000	0.000	0.000	500.000	500.000
5732	Wabash Alloys	Wabash Alloys Mississauga	Mississauga	ON	9.682	0.000	0.000	0.000	9.682
3097	Burlington Technologies Inc.	Alumetco Division	Brantford	ON	5.910	0.000	0.000	0.000	5.910
4204	Sydney Steel Corporation	Sydney Steel Corp.	Sydney	NS	0.000	0.000	0.000	3.600	3.600
4571	Canbro Inc.		Salaberry-de-Valleyfield	QC	3.000	0.000	0.000	0.000	3.000
1067	Wabash Alloys	Wabash Alloys Guelph	Guelph	ON	2.903	0.000	0.000	0.000	2.903
3907	Cominco Ltd.	Cominco Ltd. Sullivan Concentrator	Kimberley	BC	0.000	0.000	2.800	0.002	2.802
3096	Burlington Technologies Inc.	Burlington Division	Burlington	ON	2.650	0.000	0.000	0.000	2.650
1480	Indalloy, Division of Indalex Ltd.		Toronto	ON	2.430	0.000	0.000	0.000	2.430

Aluminum oxide (fibrous forms) — CAS #: 1344-28-1 — Total # of Reports: 12 — Total Releases (tonnes): 609.050

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
2537	Safety-Kleen Ltd.	Lambton Facility	Corunna	ON	0.001	0.000	0.000	360.400	360.401
3158	Atlas Steels Inc.	Atlas Specialty Steels	Welland	ON	0.000	0.000	0.000	248.148	248.148
5336	Weatherford Canada	Weatherford Completion and Oilfield Services McAllister	Calgary	AB	0.500	0.000	0.000	0.000	0.500

Ammonia (total) — CAS #: N/A — Total # of Reports: 331 — Total Releases (tonnes): 37 280.429

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
2134	Agrium Products Inc.	Redwater Fertilizer Operations	Redwater/Municipal District of Sturgeon	AB	2 566.650	1 441.630	13.160	4.640	4 026.080
2960	Shell Canada Products Limited	Shell Scotford Refinery	Fort Saskatchewan	AB	0.000	2 978.000	0.170	0.000	2 978.170
2240	City of Toronto	Ashbridges Bay (formerly Main) Sewage Treatment Plant	Toronto	ON	0.000	0.000	2 936.695	0.000	2 936.695
3821	Canadian Fertilizers Limited		Medicine Hat	AB	2 347.075	0.000	22.302	0.000	2 369.377
0770	Regional Municipality of Ottawa-Carleton	Robert O. Pickard Environmental Centre	Gloucester	ON	0.000	0.000	1 997.000	0.000	1 997.000
3903	Petro-Canada	Edmonton Refinery	Edmonton	AB	0.000	1 993.733	0.565	0.000	1 994.298
1290	General Chemical Canada Ltd.	Amherstburg Plant	Amherstburg	ON	1 885.000	0.000	97.000	0.000	1 982.000
3269	Agrium Inc.	Carseland Nitrogen Operations	Calgary	AB	1 723.400	0.000	0.000	1.400	1 724.800
4874	Agrium	Fort Saskatchewan Nitrogen Operations	Fort Saskatchewan	AB	498.400	1 123.000	0.000	0.000	1 621.400
3807	Nitrochem Corp. (formerly Hydro Agri Canada L.P.)	Nitrochem Corp. Maitland Site	Maitland	ON	1 109.000	0.000	8.350	0.000	1 117.350

Anthracene — CAS #: 120-12-7 — Total # of Reports: 14 — Total Releases (tonnes): 1.587

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
3713	Dofasco Inc.	Dofasco Hamilton	Hamilton	ON	0.650	0.000	0.000	0.000	0.650

Antimony (and its compounds) — CAS #: N/A — Total # of Reports: 35 — Total Releases (tonnes): 13.091

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
3623	Noranda Inc.	Fonderie Horne	Rouyn-Noranda	QC	5.540	0.000	0.605	0.000	6.145
3802	Cominco Ltd.	Trail Operations	Trail	BC	1.680	0.000	4.360	0.000	6.040

Arsenic (and its compounds) — CAS #: N/A — Total # of Reports: 82 — Total Releases (tonnes): 286.304

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
3623	Noranda Inc.	Fonderie Horne	Rouyn-Noranda	QC	69.200	0.000	0.140	0.000	69.340
0444	Inco Limited	Copper Cliff Smelter Complex	Copper Cliff	ON	63.680	0.000	0.000	0.000	63.680
3992	Nova Scotia Power Inc.	Lingan Generating Station	New Waterford	NS	0.500	0.000	0.000	21.200	21.700
3414	Hudson Bay Mining and Smelting Company Ltd.	HBM&S Co., Ltd. - Metallurgical Complex	Flin Flon	MB	18.825	0.000	0.095	0.000	18.920
1708	New Brunswick Power	Grand Lake Generation Station	Minto	NB	0.055	0.000	1.676	16.697	18.428
2537	Safety-Kleen Ltd.	Lambton Facility	Corunna	ON	0.001	0.000	0.000	16.400	16.401
1861	Ontario Power Generation Inc.	Nanticoke Generating Station	Nanticoke	ON	0.218	0.000	0.093	15.239	15.550
1809	Ontario Power Generation Inc.	Lambton Generating Station	Courtright	ON	0.029	0.000	0.008	15.043	15.080
3385	Noranda Inc.	Mines Gaspé	Murdochville	QC	9.600	0.000	0.103	0.000	9.703
2284	TransAlta Utilities Corporation	Sundance Thermal Generating Plant	Duffield	AB	0.027	0.000	0.000	8.262	8.289

Asbestos (friable form) — CAS #: 1332-21-4 — Total # of Reports: 59 — Total Releases (tonnes): 1 725.708

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
5200	Browning Ferris Industries	BFI Calgary Landfill District #236	Calgary	AB	0.000	0.000	0.000	1 455.560	1 455.560
4871	Safety-Kleen Ltd.	Ryley Facility	Ryley	AB	0.000	0.000	0.000	133.263	133.263
2108	Shell Canada Limited	Waterton Complex	Pincher Creek	AB	0.000	0.000	0.000	78.000	78.000
3146	Dow Chemical Canada Inc.	Dow Chemical Canada Inc. - Sarnia	Sarnia	ON	0.000	0.000	0.000	31.040	31.040
2051	Tolko Manitoba		The Pas	MB	0.000	0.000	0.000	14.858	14.858
2230	Suncor Energy Inc.	Suncor Energy Inc. Oil Sands	Fort McMurray	AB	0.000	0.000	0.000	8.670	8.670
3171	Eurocan Pulp and Paper Co. - A Division of West Fraser Mills	Eurocan Pulp & Paper	Kitimat	BC	0.000	0.000	0.000	2.000	2.000
2274	Syncrude Canada Ltd.	Mildred Lake Plant Site	Fort McMurray	AB	0.000	0.000	0.000	1.380	1.380
1564	LAB Chrysotile Inc.		Black Lake	QC	0.000	0.000	0.000	0.000	0.500

Benzene — CAS #: 71-43-2 — Total # of Reports: 118 — Total Releases (tonnes): 1 523.061

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
3713	Dofasco Inc.	Dofasco Hamilton	Hamilton	ON	253.180	0.000	0.000	0.001	253.181
2984	Stelco Inc.	Hilton Works	Hamilton	ON	203.800	0.000	0.185	0.000	203.985
1070	Algoma Steel Inc.		Sault Ste. Marie	ON	164.436	0.000	0.043	0.000	164.479
3855	Lake Erie Steel Company		Nanticoke	ON	93.446	0.000	0.000	0.000	93.446
5808	Cabot Canada Ltd.		Sarnia	ON	88.500	0.000	0.000	0.000	88.500
2274	Syncrude Canada Ltd.	Mildred Lake Plant Site	Fort McMurray	AB	62.431	0.000	0.000	0.000	62.431
1162	Celanese Canada Inc.	Edmonton Facility	Edmonton	AB	38.480	5.300	0.000	0.000	43.780
1785	NOVA Chemicals (Canada) Ltd.	NOVA Chemicals (Canada) Ltd. - Sarnia Site	Sarnia	ON	40.856	0.000	0.000	0.000	40.856
4566	Pengrowth	Judy Creek Production Complex	Swan Hills	AB	39.910	0.000	0.000	0.000	39.910
3962	Shell Canada Products Limited	Sarnia Manufacturing Centre	Corunna	ON	34.652	0.000	0.820	0.011	34.483

Biphenyl — CAS #: 92-52-4 — Total # of Reports: 9 — Total Releases (tonnes): 10.529

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
3422	DuPont Canada Inc.	Kingston Site	Kingston	ON	4.900	0.000	0.000	0.000	4.900
4700	NOVA Chemicals Corporation	St. Clair River Site	Corunna	ON	2.072	0.000	0.000	0.000	2.072
3793	Celanese Canada Inc.	Millhaven Facility	Ernestown	ON	2.030	0.000	0.000	0.000	2.030
3897	Petro-Canada	Raffinerie de Montréal	Montréal	QC	0.559	0.000	0.000	0.000	0.559

Bis(2-ethylhexyl) adipate — CAS #: 103-23-1 — Total # of Reports: 19 — Total Releases (tonnes): 15.454

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
1269	Ford Motor Company	Essex Aluminum Plant	Windsor	ON	14.674	0.000	0.000	0.000	14.674
5819	AEP Canada Inc.	West Hill	West Hill	ON	0.000	0.000	0.000	0.000	0.587

Arsenic (and its compounds) — CAS #: N/A — Total # of Reports: 82 — Total Releases (tonnes): 286.304

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
3623	Noranda Inc.	Fonderie Horne	Rouyn-Noranda	QC	69.200	0.000	0.140	0.000	69.340
0444	Inco Limited	Copper Cliff Smelter Complex	Copper Cliff	ON	63.680	0.000	0.000	0.000	63.680
3992	Nova Scotia Power Inc.	Lingan Generating Station	New Waterford	NS	0.500	0.000	0.000	21.200	21.700
3414	Hudson Bay Mining and Smelting Company Ltd.	HBM&S Co., Ltd. - Metallurgical Complex	Flin Flon	MB	18.825	0.000	0.095	0.000	18.920
1708	New Brunswick Power	Grand Lake Generation Station	Minto	NB	0.055	0.000	1.676	16.697	18.428
2537	Safety-Kleen Ltd.	Lambton Facility	Corunna	ON	0.001	0.000	0.000	16.400	16.401
1861	Ontario Power Generation Inc.	Nanticoke Generating Station	Nanticoke	ON	0.218	0.000	0.093	15.239	15.550
1809	Ontario Power Generation Inc.	Lambton Generating Station	Courtright	ON	0.029	0.000	0.008	15.043	15.080
3385	Noranda Inc.	Mines Gaspé	Murdochville	QC	9.600	0.000	0.103	0.000	9.703
2284	TransAlta Utilities Corporation	Sundance Thermal Generating Plant	Duffield	AB	0.027	0.000	0.000	8.262	8.289

Asbestos (friable form) — CAS #: 1332-21-4 — Total # of Reports: 59 — Total Releases (tonnes): 1 725.708

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
5200	Browning Ferris Industries	BFI Calgary Landfill District #236	Calgary	AB	0.000	0.000	0.000	1 455.560	1 455.560
4871	Safety-Kleen Ltd.	Ryley Facility	Ryley	AB	0.000	0.000	0.000	133.203	133.203
2108	Shell Canada Limited	Waterton Complex	Pincher Creek	AB	0.000	0.000	0.000	78.000	78.000
3146	Dow Chemical Canada Inc.	Dow Chemical Canada Inc. - Sarnia	Sarnia	ON	0.000	0.000	0.000	31.040	31.040
2051	Tolko Manitoba		The Pas	MB	0.000	0.000	0.000	14.898	14.898
2230	Suncor Energy Inc.	Suncor Energy Inc. Oil Sands	Fort McMurray	AB	0.000	0.000	0.000	8.670	8.670
3171	Eurocan Pulp and Paper Co. - A Division of West Fraser Mills	Eurocan Pulp & Paper	Kitimat	BC	0.000	0.000	0.000	2.000	2.000
2274	Syncrude Canada Ltd.	Mildred Lake Plant Site	Fort McMurray	AB	0.000	0.000	0.000	1.380	1.380
1564	LAB Chrysotile Inc.		Black Lake	QC	0.000	0.000	0.000	0.000	0.500

Benzene — CAS #: 71-43-2 — Total # of Reports: 118 — Total Releases (tonnes): 1 523.061

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
3713	Dofasco Inc.	Dofasco Hamilton	Hamilton	ON	253.180	0.000	0.000	0.001	253.181
2984	Stelco Inc.	Hilton Works	Hamilton	ON	203.800	0.000	0.105	0.000	203.905
1070	Algoma Steel Inc.		Sault Ste. Marie	ON	164.436	0.000	0.043	0.000	164.479
3855	Lake Erie Steel Company		Nanticoke	ON	93.446	0.000	0.000	0.000	93.446
5808	Cabot Canada Ltd.		Sarnia	ON	88.500	0.000	0.000	0.000	88.500
2274	Syncrude Canada Ltd.	Mildred Lake Plant Site	Fort McMurray	AB	62.431	0.000	0.000	0.000	62.431
1162	Celanese Canada Inc.	Edmonton Facility	Edmonton	AB	38.480	5.300	0.000	0.000	43.780
1785	NOVA Chemicals (Canada) Ltd.	NOVA Chemicals (Canada) Ltd. - Sarnia Site	Sarnia	ON	40.856	0.000	0.000	0.000	40.856
4566	Pengrowth	Judy Creek Production Complex	Swan Hills	AB	39.910	0.000	0.000	0.000	39.910
3962	Shell Canada Products Limited	Sarnia Manufacturing Centre	Corunna	ON	34.652	0.000	0.020	0.011	34.683

Biphenyl — CAS #: 92-52-4 — Total # of Reports: 9 — Total Releases (tonnes): 10.529

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
3422	DuPont Canada Inc.	Kingston Site	Kingston	ON	4.900	0.000	0.000	0.000	4.900
4700	NOVA Chemicals Corporation	St. Clair River Site	Corunna	ON	2.072	0.000	0.000	0.000	2.072
3793	Celanese Canada Inc.	Millhaven Facility	Ernestown	ON	2.030	0.000	0.000	0.000	2.030
3897	Petro-Canada	Raffinerie de Montréal	Montréal	QC	0.559	0.000	0.000	0.000	0.559

Bis(2-ethylhexyl) adipate — CAS #: 103-23-1 — Total # of Reports: 19 — Total Releases (tonnes): 15.454

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
1269	Ford Motor Company	Essex Aluminum Plant	Windsor	ON	14.674	0.000	0.000	0.000	14.674
5819	AEP Canada Inc.	West Hill	West Hill	ON	0.000	0.000	0.000	0.000	0.597

Bis(2-ethylhexyl) phthalate — CAS #: 117-81-7 — Total # of Reports: 38 — Total Releases (tonnes): 10.285

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
1083	Produits American Biltrite Ltée		Sherbrooke	QC	6.000	0.000	0.000	0.000	6.000
5336	Weatherford Canada	Weatherford Completion and Oilfield Services McAllister	Calgary	AB	1.150	0.000	0.000	1.150	2.300
3799	Crown Cork & Seal Canada Inc.	Crown Cork & Seal Canada Inc. - Plt. 234	Montréal	QC	0.649	0.000	0.000	0.000	0.649
4544	RCR International Inc.		Mississauga	ON	0.632	0.000	0.000	0.000	0.632

1,3-Butadiene — CAS #: 106-99-0 — Total # of Reports: 15 — Total Releases (tonnes): 96.089

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
1944	Bayer Inc.	Bayer Inc. Sarnia Site	Sarnia	ON	60.068	0.000	0.000	0.000	60.068
1776	NOVA Chemicals (Canada) Ltd.	NOVA Chemicals (Canada) Ltd. - Corunna Site	Corunna	ON	18.220	0.000	0.000	0.000	18.220
2274	Syncrude Canada Ltd.	Mildred Lake Plant Site	Fort McMurray	AB	5.172	0.000	0.000	0.000	5.172
3634	Petromont, société en commandite	Usine de Varennes	Varennes	QC	4.748	0.000	0.000	0.000	4.748
1779	NOVA Chemicals Corporation	Joffre Site	Red Deer	AB	3.883	0.000	0.000	0.000	3.883
0280	Dow Chemical Canada Inc.	Western Canada Operations	Fort Saskatchewan	AB	1.787	0.000	0.000	0.000	1.787
0281	Dow Chemical Canada Inc.	Varennes Site	Varennes	QC	1.541	0.000	0.000	0.000	1.541

i-Butyl alcohol — CAS #: 78-83-1 — Total # of Reports: 41 — Total Releases (tonnes): 126.487

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
1866	Palliser Furniture Ltd.	DeFehr Division	Winnipeg	MB	33.083	0.000	0.000	0.000	33.083
3893	General Motors of Canada Limited	Oshawa Car Assembly Plant	Oshawa	ON	24.006	0.000	0.000	0.000	24.006
3478	DaimlerChrysler AG	Pillette Road Truck Assembly Plant	Windsor	ON	23.660	0.000	0.000	0.000	23.660
3419	Ford Motor Company	Oakville Assembly Plant	Oakville	ON	11.058	0.000	0.000	0.000	11.058
0476	Kitchencraft of Canada Ltd.	Manufacturing Plant	Winnipeg	MB	11.000	0.000	0.000	0.000	11.000
1215	Ford Motor Company	Ontario Truck Plant	Oakville	ON	8.643	0.000	0.000	0.000	8.643
5753	Inscape	Holland Landing	Holland Landing	ON	6.420	0.000	0.000	0.000	6.420
5619	Chemcraft International Inc.	Port Hope	Port Hope	ON	2.814	0.000	0.000	0.000	2.814
2385	Winpak Ltd.	Winpak Division	Winnipeg	MB	1.466	0.000	0.000	0.000	1.466
2521	Polycon Industries		Guelph	ON	0.619	0.000	0.000	0.000	0.619

n-Butyl alcohol — CAS #: 71-36-3 — Total # of Reports: 91 — Total Releases (tonnes): 1 214.874

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
3893	General Motors of Canada Limited	Oshawa Car Assembly Plant	Oshawa	ON	150.410	0.000	0.000	0.000	150.410
3116	Ball Packaging Products Canada, Inc.	Ball Packaging Products Canada, Inc. Whitby	Whitby	ON	124.491	0.000	0.000	0.000	124.491
0538	Crown Cork & Seal Canada Inc.	Crown Cork & Seal Canada Inc. - Plt.245	Weston	ON	123.970	0.000	0.000	0.000	123.970
1105	AT Plastics Inc.	AT Plastics Inc. Packaging	Brampton	ON	99.700	0.000	0.000	0.000	99.700
3419	Ford Motor Company	Oakville Assembly Plant	Oakville	ON	97.810	0.000	0.000	0.000	97.810
3883	Ford Motor Company	St. Thomas Assembly Plant	St. Thomas	ON	75.080	0.000	0.000	0.000	75.080
0557	Crown Cork & Seal Canada Inc.	Crown Cork & Seal Canada Inc. - Plt.235	Calgary	AB	74.123	0.000	0.000	0.000	74.123
3216	Crown Cork & Seal Canada Inc.	Crown Cork & Seal Canada Inc. - Plt.244	Concord	ON	62.668	0.000	0.000	0.000	62.668
3870	General Motors of Canada Limited	Oshawa Truck Assembly Centre	Oshawa	ON	60.041	0.000	0.000	0.000	60.041
3118	Ball Packaging Products Canada, Inc.	Ball Packaging Products Canada, Inc. Richmond	Richmond	BC	35.800	0.000	0.000	0.000	35.800

tert-Butyl alcohol — CAS #: 75-65-0 — Total # of Reports: 4 — Total Releases (tonnes): 363.805

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
1162	Celanese Canada Inc.	Edmonton Facility	Edmonton	AB	44.400	300.000	0.000	0.003	344.403
3198	3M Canada Company (London)	London, Ontario	London	ON	13.482	0.000	0.000	0.000	13.482
1944	Bayer Inc.	Bayer Inc. Sarnia Site	Sarnia	ON	5.820	0.000	0.000	0.000	5.820

Butyl benzyl phthalate — CAS #: 85-68-7 — Total # of Reports: 8 — Total Releases (tonnes): 10.844

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
4708	Bay Mills Limited	Bayex Division	St. Catharines	ON	5.850	0.000	0.000	0.000	5.850
4935	Armstrong World Industries Canada Ltd.	Montreal Plant	Montréal	QC	3.900	0.000	0.000	0.000	3.900
2420	Domco Tarkett Inc.	Domco Tarkett Inc.	Farnham	QC	0.904	0.000	0.000	0.000	0.904

Bis(2-ethylhexyl) phthalate — CAS #: 117-81-7 — Total # of Reports: 38 — Total Releases (tonnes): 10.285

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
1083	Produits American Biltrite Ltee		Sherbrooke	QC	6.000	0.000	0.000	0.000	6.000
5336	Weatherford Canada	Weatherford Completion and Oilfield Services McAllister	Calgary	AB	1.150	0.000	0.000	1.150	2.300
3799	Crown Cork & Seal Canada Inc.	Crown Cork & Seal Canada Inc. - Plt. 234	Montreal	QC	0.649	0.000	0.000	0.000	0.649
4544	RCR International Inc.		Mississauga	ON	0.632	0.000	0.000	0.000	0.632

1,3-Butadiene — CAS #: 106-99-0 — Total # of Reports: 15 — Total Releases (tonnes): 96.089

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
1944	Bayer Inc.	Bayer Inc. Sarnia Site	Sarnia	ON	60.068	0.000	0.000	0.000	60.068
1776	NOVA Chemicals (Canada) Ltd.	NOVA Chemicals (Canada) Ltd. - Corunna Site	Corunna	ON	18.220	0.000	0.000	0.000	18.220
2274	Syncrude Canada Ltd.	Mildred Lake Plant Site	Fort McMurray	AB	5.172	0.000	0.000	0.000	5.172
3634	Pétromont, société en commandite	Usine de Varennes	Varennes	QC	4.748	0.000	0.000	0.000	4.748
1779	NOVA Chemicals Corporation	Joffre Site	Red Deer	AB	3.883	0.000	0.000	0.000	3.883
0280	Dow Chemical Canada Inc.	Western Canada Operations	Fort Saskatchewan	AB	1.787	0.000	0.000	0.000	1.787
0281	Dow Chemical Canada Inc.	Varennes Site	Varennes	QC	1.541	0.000	0.000	0.000	1.541

i-Butyl alcohol — CAS #: 78-83-1 — Total # of Reports: 41 — Total Releases (tonnes): 126.487

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
1866	Palliser Furniture Ltd.	DeFehr Division	Winnipeg	MB	33.083	0.000	0.000	0.000	33.083
3893	General Motors of Canada Limited	Oshawa Car Assembly Plant	Oshawa	ON	24.006	0.000	0.000	0.000	24.006
3478	DaimlerChrysler AG	Pillette Road Truck Assembly Plant	Windsor	ON	23.660	0.000	0.000	0.000	23.660
3419	Ford Motor Company	Oakville Assembly Plant	Oakville	ON	11.058	0.000	0.000	0.000	11.058
0476	Kitchencraft of Canada Ltd.	Manufacturing Plant	Winnipeg	MB	11.000	0.000	0.000	0.000	11.000
1215	Ford Motor Company	Ontario Truck Plant	Oakville	ON	8.643	0.000	0.000	0.000	8.643
5753	Inscape	Holland Landing	Holland Landing	ON	6.420	0.000	0.000	0.000	6.420
5619	Chemcraft International Inc.	Port Hope	Port Hope	ON	2.814	0.000	0.000	0.000	2.814
2385	Winpak Ltd.	Winpak Division	Winnipeg	MB	1.466	0.000	0.000	0.000	1.466
2521	Polycon Industries		Guelph	ON	0.619	0.000	0.000	0.000	0.619

n-Butyl alcohol — CAS #: 71-36-3 — Total # of Reports: 91 — Total Releases (tonnes): 1 214.874

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
3893	General Motors of Canada Limited	Oshawa Car Assembly Plant	Oshawa	ON	150.410	0.000	0.000	0.000	150.410
3116	Ball Packaging Products Canada, Inc.	Ball Packaging Products Canada, Inc. Whitby	Whitby	ON	124.491	0.000	0.000	0.000	124.491
0538	Crown Cork & Seal Canada Inc.	Crown Cork & Seal Canada Inc. - Plt.245	Weston	ON	123.970	0.000	0.000	0.000	123.970
1105	AT Plastics Inc.	AT Plastics Inc. Packaging	Brampton	ON	99.700	0.000	0.000	0.000	99.700
3419	Ford Motor Company	Oakville Assembly Plant	Oakville	ON	97.810	0.000	0.000	0.000	97.810
3883	Ford Motor Company	St. Thomas Assembly Plant	St. Thomas	ON	75.080	0.000	0.000	0.000	75.080
0557	Crown Cork & Seal Canada Inc.	Crown Cork & Seal Canada Inc. - Plt.235	Calgary	AB	74.123	0.000	0.000	0.000	74.123
3216	Crown Cork & Seal Canada Inc.	Crown Cork & Seal Canada Inc. - Plt.244	Concord	ON	62.668	0.000	0.000	0.000	62.668
3870	General Motors of Canada Limited	Oshawa Truck Assembly Centre	Oshawa	ON	60.041	0.000	0.000	0.000	60.041
3118	Ball Packaging Products Canada, Inc.	Ball Packaging Products Canada, Inc. Richmond	Richmond	BC	35.800	0.000	0.000	0.000	35.800

tert-Butyl alcohol — CAS #: 75-65-0 — Total # of Reports: 4 — Total Releases (tonnes): 363.805

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
1162	Celanese Canada Inc.	Edmonton Facility	Edmonton	AB	44.400	300.000	0.000	0.003	344.403
3198	3M Canada Company (London)	London, Ontario	London	ON	13.482	0.000	0.000	0.000	13.482
1944	Bayer Inc.	Bayer Inc. Sarnia Site	Sarnia	ON	5.820	0.000	0.000	0.000	5.820

Butyl benzyl phthalate — CAS #: 85-68-7 — Total # of Reports: 8 — Total Releases (tonnes): 10.844

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
4708	Bay Mills Limited	Bayex Division	St. Catharines	ON	5.850	0.000	0.000	0.000	5.850
4935	Armstrong World Industries Canada Ltd.	Montreal Plant	Montréal	QC	3.900	0.000	0.000	0.000	3.900
2420	Domco Tarkett Inc.	Domco Tarkett Inc.	Farnham	QC	0.904	0.000	0.000	0.000	0.904

Cadmium (and its compounds) — CAS #: N/A — Total # of Reports: 30 — Total Releases (tonnes): 179.848

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
2537	Safety-Kleen Ltd.	Lambton Facility	Corunna	ON	0.000	0.000	0.000	140.500	140.500
3414	Hudson Bay Mining and Smelting Company Ltd.	HBM&S Co., Ltd. Metallurgical Complex	Flin Flon	MB	26.218	0.000	0.136	0.000	26.354
0444	Inco Limited	Copper Cliff Smelter Complex	Copper Cliff	ON	4.297	0.000	0.000	0.000	4.297
3623	Noranda Inc.	Fonderie Horne	Rouyn-Noranda	QC	2.320	0.000	0.155	0.000	2.475
2938	Noranda Inc. CEZinc	Usine d'extraction de zinc	Salaberry-de-Valleyfield	QC	1.640	0.000	0.020	0.000	1.660
3802	Cominco Ltd.	Trail Operations	Trail	BC	0.600	0.000	0.410	0.000	1.010
4024	Noranda Inc.	Brunswick Smelter	Belledune	NB	0.840	0.000	0.132	0.000	0.972
4204	Sydney Steel Corporation	Sydney Steel Corp.	Sydney	NS	0.000	0.000	0.000	0.870	0.870
2815	Falconbridge Limited - Kidd Metallurgical Div.	Kidd Metallurgical Site	District of Cochrane	ON	0.484	0.000	0.119	0.000	0.603

Carbon disulphide — CAS #: 75-15-0 — Total # of Reports: 30 — Total Releases (tonnes): 4 246.056

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
5808	Cabot Canada Ltd.		Sarnia	ON	1 731.700	0.000	0.000	0.000	1 731.700
2119	Shell Canada Limited	Jumping Pound Complex	Calgary	AB	451.000	0.000	0.000	0.000	451.000
2781	Shell Canada Limited	Shell Burnt Timber Complex	Didsbury	AB	314.410	0.000	0.000	0.000	314.410
2108	Shell Canada Limited	Waterton Complex	Pincher Creek	AB	263.600	0.000	0.000	0.000	263.600
3758	Petro-Canada	Hanlan-Robb Gas Plant	Edson	AB	234.330	0.000	0.000	0.000	234.330
0683	Chevron Canada Resources	Kaybob South #3 Gas Plant	Fox Creek	AB	221.000	0.000	0.000	0.000	221.000
0407	Husky Oil Operations Limited	Ram River Gas Plant	Rocky Mountain House	AB	220.520	0.000	0.000	0.000	220.520
1902	Wascana Energy Inc. (Subsidiary of Canadian Occidental)	Balzac Gas Plant	Balzac	AB	216.619	0.000	0.000	0.000	216.619
4138	Amoco Canada Petroleum Company	West Whitecourt Plant	na/so	AB	119.100	0.000	0.000	0.000	119.100
4150	Amoco Canada Petroleum Company	Kaybob South Sour Gas Plant	Fox Creek	AB	112.137	0.000	0.000	0.000	112.137

Chlorine — CAS #: 7782-50-5 — Total # of Reports: 172 — Total Releases (tonnes): 504.441

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
1221	Fraser Papers Inc. (Canada)	Edmundston Operations	Edmundston	NB	141.146	0.000	0.000	0.000	141.146
2604	Irving Pulp & Paper Limited / Irving Tissue Company		Saint John	NB	39.090	0.000	0.000	0.000	39.090
2607	Kimberly-Clark Corporation	Kimberly Clark Forest Products, Inc.	Terrace Bay	ON	31.400	0.000	0.000	0.000	31.400
3406	Alcan Groupe Métal primaire	Usine Arvida	Jonquière	QC	26.390	0.000	0.000	0.000	26.390
1617	Repap New Brunswick Inc.	Kraft Pulp and Paper Division	Miramichi	NB	25.000	0.000	0.000	0.000	25.000
0279	Domtar Inc.	Usine Norkraft, Lebel-sur- Quévillon	Lebel-sur-Quévillon	QC	19.900	0.000	0.000	0.000	19.900
2181	St. Anne-Nackawic Company Ltd.		Nackawic	NB	19.000	0.000	0.000	0.000	19.000
0747	Norsk Hydro Canada Inc.	Hydro Magnesium Canada	Bécancour	QC	16.050	0.000	0.000	0.000	16.050
0930	Bowater Pulp and Paper Canada Inc.	Thunder Bay Operations	Thunder Bay	ON	15.770	0.000	0.000	0.000	15.770
0683	Chevron Canada Resources	Kaybob South #3 Gas Plant	Fox Creek	AB	0.150	14.843	0.000	0.000	14.993

Chlorine dioxide — CAS #: 10049-04-4 — Total # of Reports: 46 — Total Releases (tonnes): 947.204

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
5480	Les Industries Paperboard International Inc.	Fjord Cell Inc.	Jonquière	QC	117.000	0.000	0.000	0.000	117.000
2181	St. Anne-Nackawic Company Ltd.		Nackawic	NB	102.000	0.000	0.000	0.000	102.000
1197	Domtar Papers	Cornwall Business Unit	Cornwall	ON	84.550	0.000	0.000	0.000	84.550
1596	Tembec Industries Inc.	Pulp Group, Smooth Rock Falls Division	Smooth Rock Falls	ON	81.800	0.000	0.000	0.000	81.800
1221	Fraser Papers Inc. (Canada)	Edmundston Operations	Edmundston	NB	64.476	0.000	0.000	0.000	64.476
2604	Irving Pulp & Paper Limited / Irving Tissue Company		Saint John	NB	62.570	0.000	0.000	0.000	62.570
0723	Pacifica Papers Inc.	Pacifica Papers, Powell River	Powell River	BC	45.250	0.000	0.000	0.000	45.250
2607	Kimberly-Clark Corporation	Kimberly Clark Forest Products, Inc.	Terrace Bay	ON	38.100	0.000	0.000	0.000	38.100
1486	Fletcher Challenge Canada Pulp Operations Ltd.	Mackenzie Pulp	Mackenzie	BC	38.070	0.000	0.000	0.000	38.070
3610	Weyerhaeuser Saskatchewan Limited	Prince Albert Pulp & Paper	Prince Albert	SK	33.701	0.000	0.000	0.000	33.701

Cadmium (and its compounds) — CAS #: N/A — Total # of Reports: 30 — Total Releases (tonnes): 179.848

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
2537	Safety-Kleen Ltd.	Lambton Facility	Corunna	ON	0.000	0.000	0.000	140.500	140.500
3414	Hudson Bay Mining and Smelting Company Ltd.	HBM&S Co., Ltd. Metallurgical Complex	Flin Flon	MB	26.218	0.000	0.136	0.000	26.354
0444	Inco Limited	Copper Cliff Smelter Complex	Copper Cliff	ON	4.297	0.000	0.000	0.000	4.297
3623	Noranda Inc.	Fonderie Horne	Rouyn-Noranda	QC	2.320	0.000	0.155	0.000	2.475
2938	Noranda Inc. CEZinc	Usine d'extraction de zinc	Salaberry-de-Valleyfield	QC	1.640	0.000	0.020	0.000	1.660
3802	Cominco Ltd.	Trail Operations	Trail	BC	0.600	0.000	0.410	0.000	1.010
4024	Noranda Inc.	Brunswick Smelter	Belledune	NB	0.840	0.000	0.132	0.000	0.972
4204	Sydney Steel Corporation	Sydney Steel Corp.	Sydney	NS	0.000	0.000	0.000	0.870	0.870
2815	Falconbridge Limited - Kidd Metallurgical Div.	Kidd Metallurgical Site	District of Cochrane	ON	0.484	0.000	0.119	0.000	0.603

Carbon disulphide — CAS #: 75-15-0 — Total # of Reports: 30 — Total Releases (tonnes): 4 246.056

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
5808	Cabot Canada Ltd.		Sarnia	ON	1 731.700	0.000	0.000	0.000	1 731.700
2119	Shell Canada Limited	Jumping Pound Complex	Calgary	AB	451.000	0.000	0.000	0.000	451.000
2781	Shell Canada Limited	Shell Burnt Timber Complex	Didsbury	AB	314.410	0.000	0.000	0.000	314.410
2108	Shell Canada Limited	Waterton Complex	Pincher Creek	AB	263.600	0.000	0.000	0.000	263.600
3758	Petro-Canada	Hanlan-Robb Gas Plant	Edson	AB	234.330	0.000	0.000	0.000	234.330
0683	Chevron Canada Resources	Kaybob South #3 Gas Plant	Fox Creek	AB	221.000	0.000	0.000	0.000	221.000
0407	Husky Oil Operations Limited	Ram River Gas Plant	Rocky Mountain House	AB	220.520	0.000	0.000	0.000	220.520
1902	Wascana Energy Inc. (Subsidiary of Canadian Occidental)	Balzac Gas Plant	Balzac	AB	216.619	0.000	0.000	0.000	216.619
4138	Amoco Canada Petroleum Company	West Whitecourt Plant	na/so	AB	119.100	0.000	0.000	0.000	119.100
4150	Amoco Canada Petroleum Company	Kaybob South Sour Gas Plant	Fox Creek	AB	112.137	0.000	0.000	0.000	112.137

Chlorine — CAS #: 7782-50-5 — Total # of Reports: 172 — Total Releases (tonnes): 504.441

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
1221	Fraser Papers Inc. (Canada)	Edmundston Operations	Edmundston	NB	141.146	0.000	0.000	0.000	141.146
2604	Irving Pulp & Paper Limited / Irving Tissue Company		Saint John	NB	39.090	0.000	0.000	0.000	39.090
2607	Kimberly-Clark Corporation	Kimberly Clark Forest Products, Inc.	Terrace Bay	ON	31.400	0.000	0.000	0.000	31.400
3406	Alcan Groupe Métal primaire	Usine Arvida	Jonquière	QC	26.390	0.000	0.000	0.000	26.390
1617	Repap New Brunswick Inc.	Kraft Pulp and Paper Division	Miramichi	NB	25.000	0.000	0.000	0.000	25.000
0279	Domtar Inc.	Usine Norkraft, Lebel-sur- Quévillon	Lebel-sur-Quévillon	QC	19.900	0.000	0.000	0.000	19.900
2181	St. Anne-Nackawic Company Ltd.		Nackawic	NB	19.000	0.000	0.000	0.000	19.000
0747	Norsk Hydro Canada Inc.	Hydro Magnesium Canada	Bécancour	QC	16.050	0.000	0.000	0.000	16.050
0930	Bowater Pulp and Paper Canada Inc.	Thunder Bay Operations	Thunder Bay	ON	15.770	0.000	0.000	0.000	15.770
0683	Chevron Canada Resources	Kaybob South #3 Gas Plant	Fox Creek	AB	0.150	14.843	0.000	0.000	14.993

Chlorine dioxide — CAS #: 10049-04-4 — Total # of Reports: 46 — Total Releases (tonnes): 947.204

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
5480	Les Industries Paperboard International Inc.	Fjord Cell Inc.	Jonquière	QC	117.000	0.000	0.000	0.000	117.000
2181	St. Anne-Nackawic Company Ltd.		Nackawic	NB	102.000	0.000	0.000	0.000	102.000
1197	Domtar Papers	Cornwall Business Unit	Cornwall	ON	84.550	0.000	0.000	0.000	84.550
1596	Tembec Industries Inc.	Pulp Group, Smooth Rock Falls Division	Smooth Rock Falls	ON	81.800	0.000	0.000	0.000	81.800
1221	Fraser Papers Inc. (Canada)	Edmundston Operations	Edmundston	NB	64.476	0.000	0.000	0.000	64.476
2604	Irving Pulp & Paper Limited / Irving Tissue Company		Saint John	NB	62.570	0.000	0.000	0.000	62.570
0723	Pacifica Papers Inc.	Pacifica Papers, Powell River	Powell River	BC	45.250	0.000	0.000	0.000	45.250
2607	Kimberly-Clark Corporation	Kimberly Clark Forest Products, Inc.	Terrace Bay	ON	38.100	0.000	0.000	0.000	38.100
1486	Fletcher Challenge Canada Pulp Operations Ltd.	Mackenzie Pulp	Mackenzie	BC	38.070	0.000	0.000	0.000	38.070
3610	Weyerhaeuser Saskatchewan Limited	Prince Albert Pulp & Paper	Prince Albert	SK	33.701	0.000	0.000	0.000	33.701

Chloroethane — CAS #: 75-00-3 — Total # of Reports: 3 — Total Releases (tonnes): 221.057

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
0281	Dow Chemical Canada Inc.	Varennes Site	Varennes	QC	100.080	0.000	0.000	0.000	100.080
0282	Dow Chemical Canada Inc.	Dow Chemical Canada Inc. - Weston	Weston	ON	62.278	0.000	0.000	0.000	62.278
0280	Dow Chemical Canada Inc.	Western Canada Operations	Fort Saskatchewan	AB	58.699	0.000	0.000	0.000	58.699

Chloroform — CAS #: 67-66-3 — Total # of Reports: 11 — Total Releases (tonnes): 114.966

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
0271	Emballages Smurfit-Stone Canada Inc.	Division Pontiac	Portage-du-Fort	QC	35.086	0.000	1.485	0.000	36.571
3140	Cartons St-Laurent Inc.	Usine de La Tuque	La Tuque	QC	19.850	0.000	0.339	0.000	20.189
1419	Howe Sound Pulp and Paper Limited	Howe Sound Pulp and Paper Mill	Port Mellon	BC	17.480	0.000	0.031	0.000	17.511
2181	St. Anne-Nackawic Company Ltd.		Nackawic	NB	16.000	0.000	0.600	0.000	16.600
1221	Fraser Papers Inc. (Canada)	Edmundston Operations	Edmundston	NB	12.090	0.000	0.280	0.000	12.370
3185	Domtar Inc.	Domtar, Eddy Specialty Papers	Espanola	ON	10.650	0.000	0.008	0.000	10.658
2963	Shell Chemicals Canada Ltd.	Scotford Chemical Plant	Fort Saskatchewan	AB	0.000	0.000	0.000	0.000	0.692

Chloromethane — CAS #: 74-87-3 — Total # of Reports: 3 — Total Releases (tonnes): 371.058

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
1944	Bayer Inc.	Bayer Inc. Sarnia Site	Sarnia	ON	358.600	0.000	0.000	0.000	358.600
1797	Canadian Forest Products Ltd.	Northwood Pulp Mill	Prince George	BC	12.258	0.000	0.000	0.000	12.258

Chromium (and its compounds) CAS #: N/A Total # of Reports: 317 Total Releases (tonnes): 1 391.819

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
0444	Inco Limited	Copper Cliff Smelter Complex	Copper Cliff	ON	0.000	0.000	0.000	920.000	920.000
1861	Ontario Power Generation Inc.	Nanticoke Generating Station	Nanticoke	ON	1.529	0.000	0.096	64.664	66.289
1036	Sheerness Generating Station		Hanna	AB	0.000	0.000	0.000	52.040	52.040
2000	La Compagnie minière Québec Cartier	Usine de bouletage	Port-Cartier	QC	0.000	0.000	0.282	51.000	51.282
5219	TVX Gold Inc./High River Gold Ltd.	New Britannia Mine	Snow Lake	MB	0.000	0.000	0.000	50.000	50.000
1809	Ontario Power Generation Inc.	Lambton Generating Station	Courtright	ON	0.120	0.000	0.019	45.969	46.108
5013	Iron Ore Company of Canada	Carol Project	Labrador City	NF	1.463	0.000	1.463	25.425	28.351
2181	St. Anne-Nackawic Company Ltd.		Nackawic	NB	0.000	0.000	13.400	11.900	25.300
2284	TransAlta Utilities Corporation	Sundance Thermal Generating Plant	Duffield	AB	0.084	0.000	0.000	24.018	24.102
2286	TransAlta Utilities Corporation	Keephills Thermal Generating Plant	Duffield	AB	0.027	0.000	0.000	15.405	15.432

Cobalt (and its compounds) CAS #: N/A Total # of Reports: 39 Total Releases (tonnes): 68.506

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
1861	Ontario Power Generation Inc.	Nanticoke Generating Station	Nanticoke	ON	0.211	0.000	0.095	19.358	19.664
1471	Inco Limited	Inco Limited Port Colborne Refinery	Port Colborne	ON	0.174	0.000	0.326	18.060	18.560
1809	Ontario Power Generation Inc.	Lambton Generating Station	Courtright	ON	0.022	0.000	0.005	12.209	12.236
2284	TransAlta Utilities Corporation	Sundance Thermal Generating Plant	Duffield	AB	0.038	0.000	0.000	10.963	11.001
1467	Inco Limited	Copper Cliff Nickel Refinery	Copper Cliff	ON	3.500	0.000	0.000	0.000	3.500
1473	Inco Limited	Manitoba Division	Thompson	MB	1.190	0.000	0.167	0.000	1.357
1236	Falconbridge Limited	Smelter Complex	Falconbridge	ON	0.727	0.000	0.147	0.003	0.877

Chloroethane — CAS #: 75-00-3 — Total # of Reports: 3 — Total Releases (tonnes): 221.057

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
0281	Dow Chemical Canada Inc.	Varennes Site	Varennes	QC	100.080	0.000	0.000	0.000	100.080
0282	Dow Chemical Canada Inc.	Dow Chemical Canada Inc. - Weston	Weston	ON	62.278	0.000	0.000	0.000	62.278
0280	Dow Chemical Canada Inc.	Western Canada Operations	Fort Saskatchewan	AB	58.699	0.000	0.000	0.000	58.699

Chloroform — CAS #: 67-66-3 — Total # of Reports: 11 — Total Releases (tonnes): 114.966

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
0271	Emballages Smurfit-Stone Canada Inc.	Division Pontiac	Portage-du-Fort	QC	35.086	0.000	1.485	0.000	36.571
3140	Cartons St-Laurent Inc.	Usine de La Tuque	La Tuque	QC	19.850	0.000	0.339	0.000	20.189
1419	Howe Sound Pulp and Paper Limited	Howe Sound Pulp and Paper Mill	Port Mellon	BC	17.480	0.000	0.031	0.000	17.511
2181	St. Anne-Nackawic Company Ltd.		Nackawic	NB	16.000	0.000	0.600	0.000	16.600
1221	Fraser Papers Inc. (Canada)	Edmundston Operations	Edmundston	NB	12.090	0.000	0.280	0.000	12.370
3185	Domtar Inc.	Domtar, Eddy Specialty Papers	Espanola	ON	10.650	0.000	0.008	0.000	10.658
2963	Shell Chemicals Canada Ltd.	Scotford Chemical Plant	Fort Saskatchewan	AB	0.000	0.000	0.000	0.000	0.692

Chloromethane — CAS #: 74-87-3 — Total # of Reports: 3 — Total Releases (tonnes): 371.058

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
1944	Bayer Inc.	Bayer Inc. Sarnia Site	Sarnia	ON	358.600	0.000	0.000	0.000	358.600
1797	Canadian Forest Products Ltd.	Northwood Pulp Mill	Prince George	BC	12.258	0.000	0.000	0.000	12.258

Chromium (and its compounds) CAS #: N/A Total # of Reports: 317 Total Releases (tonnes): 1 391.819

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
0444	Inco Limited	Copper Cliff Smelter Complex	Copper Cliff	ON	0.000	0.000	0.000	920.000	920.000
1861	Ontario Power Generation Inc.	Nanticoke Generating Station	Nanticoke	ON	1.529	0.000	0.096	64.664	66.289
1036	Sheerness Generating Station		Hanna	AB	0.000	0.000	0.000	52.040	52.040
2000	La Compagnie minière Québec Cartier	Usine de bouletage	Port-Cartier	QC	0.000	0.000	0.282	51.000	51.282
5219	TVX Gold Inc./High River Gold Ltd.	New Britannia Mine	Snow Lake	MB	0.000	0.000	0.000	50.000	50.000
1809	Ontario Power Generation Inc.	Lambton Generating Station	Courtright	ON	0.120	0.000	0.019	45.969	46.108
5013	Iron Ore Company of Canada	Carol Project	Labrador City	NF	1.463	0.000	1.463	25.425	28.351
2181	St. Anne-Nackawic Company Ltd.		Nackawic	NB	0.000	0.000	13.400	11.900	25.300
2284	TransAlta Utilities Corporation	Sundance Thermal Generating Plant	Duffield	AB	0.084	0.000	0.000	24.018	24.102
2286	TransAlta Utilities Corporation	Keephills Thermal Generating Plant	Duffield	AB	0.027	0.000	0.000	15.405	15.432

Cobalt (and its compounds) CAS #: N/A Total # of Reports: 39 Total Releases (tonnes): 68.506

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
1861	Ontario Power Generation Inc.	Nanticoke Generating Station	Nanticoke	ON	0.211	0.000	0.095	19.358	19.664
1471	Inco Limited	Inco Limited Port Colborne Refinery	Port Colborne	ON	0.174	0.000	0.326	18.060	18.560
1809	Ontario Power Generation Inc.	Lambton Generating Station	Courtright	ON	0.022	0.000	0.005	12.209	12.236
2284	TransAlta Utilities Corporation	Sundance Thermal Generating Plant	Duffield	AB	0.038	0.000	0.000	10.963	11.001
1467	Inco Limited	Copper Cliff Nickel Refinery	Copper Cliff	ON	3.500	0.000	0.000	0.000	3.500
1473	Inco Limited	Manitoba Division	Thompson	MB	1.190	0.000	0.167	0.000	1.357
1236	Falconbridge Limited	Smelter Complex	Falconbridge	ON	0.727	0.000	0.147	0.003	0.877

Copper (and its compounds) CAS #: N/A Total # of Reports: 385 Total Releases (tonnes): 1 265.328

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
0444	Inco Limited	Copper Cliff Smelter Complex	Copper Cliff	ON	262.730	0.000	0.000	0.000	262.730
3623	Noranda Inc.	Fonderie Horne	Rouyn-Noranda	QC	143.920	0.000	2.700	0.000	146.620
3414	Hudson Bay Mining and Smelting Company Ltd.	HBM&S Co., Ltd. Metallurgical Complex	Flin Flon	MB	131.565	0.000	0.361	0.000	131.926
5246	Gerdau MRM Steel Inc.	Mandak Metal Processors	Selkirk	MB	0.000	0.000	0.000	121.193	121.193
1861	Ontario Power Generation Inc.	Nanticoke Generating Station	Nanticoke	ON	2.984	0.000	5.847	56.426	65.177
1469	Inco Limited	Copper Refinery	Copper Cliff	ON	60.790	0.000	0.000	0.000	60.790
2815	Falconbridge Limited - Kidd Metallurgical Div.	Kidd Metallurgical Site	District of Cochrane	ON	59.278	0.000	0.550	0.000	59.828
3655	Ispat Sidbec Inc.	Sidbec-Feruni (Ispat) Inc. Contrecoeur	Contrecoeur	QC	0.000	0.000	0.001	50.960	50.961
1471	Inco Limited	Inco Limited Port Colborne Refinery	Port Colborne	ON	0.353	0.000	0.409	45.510	46.272
1809	Ontario Power Generation Inc.	Lambton Generating Station	Courtright	ON	0.924	0.000	2.989	40.023	43.936

Cresol (mixed isomers and their salts) CAS #: 1319-77-3 Total # of Reports: 17 Total Releases (tonnes): 85.535

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
1383	Pope & Talbot Ltd.	Harmac Operations	Nanaimo	BC	17.214	0.000	0.004	0.000	17.218
3185	Domtar Inc.	Domtar, Eddy Specialty Papers	Espanola	ON	15.890	0.000	0.004	0.001	15.895
1797	Canadian Forest Products Ltd.	Northwood Pulp Mill	Prince George	BC	15.612	0.000	0.004	0.001	15.617
1419	Howe Sound Pulp and Paper Limited	Howe Sound Pulp and Paper Mill	Port Mellon	BC	15.362	0.000	0.010	0.000	15.372
2604	Irving Pulp & Paper Limited / Irving Tissue Company		Saint John	NB	11.700	0.000	1.320	0.000	13.020
0279	Domtar Inc.	Usine Norkraft, Lebel-sur-Quévillon	Lebel-sur-Quévillon	QC	3.100	0.000	0.000	0.000	3.100
0953	Alcatel Canada Wire	Simcoe Plant	Simcoe	ON	3.084	0.000	0.000	0.000	3.084
2070	VFT Inc.		Hamilton	ON	1.120	0.000	0.000	0.000	1.120

m-Cresol (and its salts) — CAS #: 108-39-4 — Total # of Reports: 2 — Total Releases (tonnes): 2.074

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
0953	Alcatel Canada Wire	Simcoe Plant	Simcoe	ON	2.074	0.000	0.000	0.000	2.074

p-Cresol (and its salts) — CAS #: 106-44-5 — Total # of Reports: 2 — Total Releases (tonnes): 1.250

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
0953	Alcatel Canada Wire	Simcoe Plant	Simcoe	ON	1.150	0.000	0.000	0.000	1.150

Cumene — CAS #: 98-82-8 — Total # of Reports: 20 — Total Releases (tonnes): 20.825

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
2274	Syncrude Canada Ltd.	Mildred Lake Plant Site	Fort McMurray	AB	14.793	0.000	0.000	0.000	14.793
3897	Petro-Canada	Raffinerie de Montréal	Montréal	QC	1.638	0.000	0.000	0.000	1.638
3704	Imperial Oil	IOL Sarnia Refinery	Sarnia	ON	0.654	0.000	0.007	0.000	0.661
1492	Elf Atochem Canada	Usine de production de peroxyde d'hydrogène	Bécancour	QC	0.621	0.000	0.000	0.000	0.621
4048	Consumers' Co-operative Refineries Ltd./NewGrade Energy Inc.	Refinery/Upgrader Complex	Regina	SK	0.599	0.000	0.000	0.000	0.599

Cyanides (ionic) — CAS #: N/A — Total # of Reports: 36 — Total Releases (tonnes): 4.764

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
0577	Dextran Products Limited		Toronto	ON	0.900	0.000	0.000	0.000	0.900
3855	Lake Erie Steel Company		Nanticoke	ON	0.000	0.000	0.000	0.000	0.829
1941	Placer Dome (CLA) Limited	Dome Mine	South Porcupine	ON	0.000	0.000	0.808	0.000	0.808
0099	Les Mines Agnico-Eagle	Division Laronde	Cadillac	QC	0.000	0.000	0.000	0.000	0.700

Copper (and its compounds) CAS #: N/A Total # of Reports: 385 Total Releases (tonnes): 1 265.328

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
0444	Inco Limited	Copper Cliff Smelter Complex	Copper Cliff	ON	262.730	0.000	0.000	0.000	262.730
3623	Noranda Inc.	Fonderie Horne	Rouyn-Noranda	QC	143.920	0.000	2.700	0.000	146.620
3414	Hudson Bay Mining and Smelting Company Ltd.	HBM&S Co., Ltd. Metallurgical Complex	Flin Flon	MB	131.565	0.000	0.361	0.000	131.926
5246	Gerdau MRM Steel Inc.	Mandak Metal Processors	Selkirk	MB	0.000	0.000	0.000	121.193	121.193
1861	Ontario Power Generation Inc.	Nanticoke Generating Station	Nanticoke	ON	2.904	0.000	5.847	56.426	65.177
1469	Inco Limited	Copper Refinery	Copper Cliff	ON	60.790	0.000	0.000	0.000	60.790
2815	Falconbridge Limited - Kidd Metallurgical Div.	Kidd Metallurgical Site	District of Cochrane	ON	59.278	0.000	0.550	0.000	59.828
3655	Ispat Sidbec Inc.	Sidbec-Feruni (Ispat) Inc. Contrecoeur	Contrecoeur	QC	0.000	0.000	0.001	50.960	50.961
1471	Inco Limited	Inco Limited Port Colborne Refinery	Port Colborne	ON	0.353	0.000	0.409	45.510	46.272
1809	Ontario Power Generation Inc.	Lambton Generating Station	Courtright	ON	0.924	0.000	2.989	40.023	43.936

Cresol (mixed isomers and their salts) CAS #: 1319-77-3 Total # of Reports: 17 Total Releases (tonnes): 85.535

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
1383	Pope & Talbot Ltd.	Harmac Operations	Nanaimo	BC	17.214	0.000	0.004	0.000	17.218
3185	Domtar Inc.	Domtar, Eddy Specialty Papers	Espanola	ON	15.890	0.000	0.004	0.001	15.895
1797	Canadian Forest Products Ltd.	Northwood Pulp Mill	Prince George	BC	15.612	0.000	0.004	0.001	15.617
1419	Howe Sound Pulp and Paper Limited	Howe Sound Pulp and Paper Mill	Port Mellon	BC	15.362	0.000	0.010	0.000	15.372
2604	Irving Pulp & Paper Limited / Irving Tissue Company		Saint John	NB	11.700	0.000	1.320	0.000	13.020
0279	Domtar Inc.	Usine Norkraft, Lebel-sur-Quévillon	Lebel-sur-Quévillon	QC	3.100	0.000	0.000	0.000	3.100
0953	Alcatel Canada Wire	Simcoe Plant	Simcoe	ON	3.084	0.000	0.000	0.000	3.084
2070	VFT Inc.		Hamilton	ON	1.120	0.000	0.000	0.000	1.120

m-Cresol (and its salts)	CAS #: 108-39-4	Total # of Reports: 2						Total Releases (tonnes): 2.074
NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
0953	Alcatel Canada Wire	Simcoe Plant	Simcoe	ON	2.074	0.000	0.000	0.000	2.074

p-Cresol (and its salts)	CAS #: 106-44-5	Total # of Reports: 2						Total Releases (tonnes): 1.250
NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
0953	Alcatel Canada Wire	Simcoe Plant	Simcoe	ON	1.150	0.000	0.000	0.000	1.150

Cumene	CAS #: 98-82-8	Total # of Reports: 20						Total Releases (tonnes): 20.825
NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
2274	Syncrude Canada Ltd	Mildred Lake Plant Site	Fort McMurray	AB	14.793	0.000	0.000	0.000	14.793
3897	Petro-Canada	Raffinerie de Montréal	Montréal	QC	1.638	0.000	0.000	0.000	1.638
3704	Imperial Oil	IOL Sarnia Refinery	Sarnia	ON	0.654	0.000	0.007	0.000	0.661
1492	Elf Atochem Canada	Usine de production de peroxyde d'hydrogène	Bécancour	QC	0.621	0.000	0.000	0.000	0.621
4048	Consumers' Co-operative Refineries Ltd./NewGrade Energy Inc.	Refinery/Upgrader Complex	Regina	SK	0.599	0.000	0.000	0.000	0.599

Cyanides (ionic)	CAS #: N/A	Total # of Reports: 36						Total Releases (tonnes): 4.764
NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
0577	Dextran Products Limited		Toronto	ON	0.900	0.000	0.000	0.000	0.900
3855	Lake Erie Steel Company		Nanticoke	ON	0.000	0.000	0.000	0.000	0.829
1941	Placer Dome (CLA) Limited	Dome Mine	South Porcupine	ON	0.000	0.000	0.808	0.000	0.808
0099	Les Mines Agnico-Eagle	Division Laronde	Cadillac	QC	0.000	0.000	0.000	0.000	0.700

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Email: info@micromedia.on.ca

Cyclohexane — CAS #: 110-82-7 — Total # of Reports: 104 — Total Releases (tonnes): 1 467.484

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
4700	NOVA Chemicals Corporation	St. Clair River Site	Corunna	ON	526.620	0.000	0.498	0.000	527.118
1944	Bayer Inc.	Bayer Inc. Sarnia Site	Sarnia	ON	458.200	0.000	0.000	0.000	458.200
1207	DuPont Canada Inc.	Maitland Site	Maitland	ON	242.191	0.000	0.000	0.000	242.191
4048	Consumers' Co-operative Refineries Ltd./NewGrade Energy Inc.	Refinery/Upgrader Complex	Regina	SK	38.560	0.000	0.000	0.000	38.560
2230	Suncor Energy Inc.	Suncor Energy Inc. Oil Sands	Fort McMurray	AB	22.880	0.000	0.000	0.000	22.880
2274	Syncrude Canada Ltd.	Mildred Lake Plant Site	Fort McMurray	AB	14.657	0.000	0.000	0.000	14.657
4316	North Atlantic Refining Ltd.	North Atlantic Refinery	Come by Chance	NF	13.308	0.000	0.077	0.000	13.385
4566	Pengrowth	Judy Creek Production Complex	Swan Hills	AB	12.789	0.000	0.000	0.000	12.789
3901	Petro-Canada	Oakville Refinery	Oakville	ON	11.138	0.000	0.000	0.000	11.138
3704	Imperial Oil	IOL Sarnia Refinery	Sarnia	ON	9.403	0.000	0.134	0.000	9.537

Dibutyl phthalate — CAS #: 84-74-2 — Total # of Reports: 15 — Total Releases (tonnes): 1.409

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
1207	DuPont Canada Inc.	Maitland Site	Maitland	ON	1.191	0.000	0.000	0.000	1.191

o-Dichlorobenzene — CAS #: 95-50-1 — Total # of Reports: 2 — Total Releases (tonnes): 2.200

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
0787	Napierville Refineries Inc.	Napierville	Napierville	QC	2.200	0.000	0.000	0.000	2.200

p-Dichlorobenzene — CAS #: 106-46-7 — Total # of Reports: 5 — Total Releases (tonnes): 10.640

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
0787	Napierville Refineries Inc.	Napierville	Napierville	QC	10.540	0.000	0.000	0.000	10.540

1,2-Dichloroethane — CAS #: 107-06-2 — Total # of Reports: 6 — Total Releases (tonnes): 27.300

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
0280	Dow Chemical Canada Inc.	Western Canada Operations	Fort Saskatchewan	AB	24.128	0.049	0.000	0.304	24.481
4646	Dow Chemical Canada Inc.	West Coast Distribution Centre	North Vancouver	BC	2.595	0.000	0.180	0.000	2.775

Dichloromethane — CAS #: 75-09-2 — Total # of Reports: 75 — Total Releases (tonnes): 2 388.935

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
2567	Carpenter Canada Co.		Woodbridge	ON	461.320	0.000	0.000	0.000	461.320
4552	Vitafoam Products Canada Ltd.	Vita-Toronto	Downsview	ON	266.460	0.000	0.000	0.000	266.460
2472	Novopharm Limited		Markham	ON	260.898	0.000	0.000	0.000	260.898
2601	Domfoam International Inc.	Domfoam	Saint-Léonard	QC	214.130	0.000	0.000	0.000	214.130
4428	Valle Foam Industries (1995) Inc.	Valle 1	Brampton	ON	196.713	0.000	0.000	0.000	196.713
2422	Foamex Canada Inc.	Foamex Toronto	Toronto	ON	154.903	0.000	0.000	0.000	154.903
5466	Foamex Canada Inc.	Montréal	Montréal	QC	136.899	0.000	0.000	0.000	136.899
5803	Elastocraft Ltd.		Mississauga	ON	98.000	0.000	0.000	0.000	98.000
2469	Novopharm Limited		Toronto	ON	96.588	0.000	0.000	0.000	96.588
0152	Carpenter Canada Co.	Calgary Division	Calgary	AB	94.803	0.000	0.000	0.000	94.803

Diethanolamine (and its salts) — CAS #: 111-42-2 — Total # of Reports: 74 — Total Releases (tonnes): 646.969

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
0683	Chevron Canada Resources	Kaybob South #3 Gas Plant	Fox Creek	AB	0.000	166.680	0.000	1.960	168.640
0409	Husky Oil Operations Limited	Husky Oil Lloydminster Upgrader	Lloydminster	SK	0.000	160.000	0.000	0.000	160.000
0407	Husky Oil Operations Limited	Ram River Gas Plant	Rocky Mountain House	AB	0.000	160.000	0.000	0.000	160.000
4138	Amoco Canada Petroleum Company	West Whitecourt Plant	na/so	AB	0.000	64.725	0.000	0.055	64.780
1902	Wascana Energy Inc. (Subsidiary of Canadian Occidental)	Balzac Gas Plant	Balzac	AB	0.272	26.698	0.000	0.101	27.071
2134	Agrium Products Inc.	Redwater Fertilizer Operations	Redwater/Municipal District of Sturgeon	AB	17.170	0.100	0.000	0.000	17.270
0686	Chevron Canada Resources	Acheson Sour Gas Plant	Spruce Grove	AB	0.000	15.680	0.000	0.000	15.680
3931	Ulster Petroleums Limited	Wimborne Gas Plant	Wimborne	AB	0.000	7.949	0.000	0.372	8.321
3928	Ultramar Ltée	Raffinerie Saint-Romuald	Saint-Romuald	QC	0.000	0.000	6.541	0.000	6.541
3962	Shell Canada Products Limited	Sarnia Manufacturing Centre	Corunna	ON	4.660	0.000	0.000	0.000	4.660

Cyclohexane — CAS #: 110-82-7 — Total # of Reports: 104 — Total Releases (tonnes): 1 467.484

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
4700	NOVA Chemicals Corporation	St. Clair River Site	Corunna	ON	526.620	0.000	0.498	0.000	527.118
1944	Bayer Inc.	Bayer Inc. Sarnia Site	Sarnia	ON	458.200	0.000	0.000	0.000	458.200
1207	DuPont Canada Inc.	Maitland Site	Maitland	ON	242.191	0.000	0.000	0.000	242.191
4048	Consumers' Co-operative Refineries Ltd./NewGrade Energy Inc.	Refinery/Upgrader Complex	Regina	SK	38.560	0.000	0.000	0.000	38.560
2230	Suncor Energy Inc.	Suncor Energy Inc. Oil Sands	Fort McMurray	AB	22.880	0.000	0.000	0.000	22.880
2274	Syncrude Canada Ltd.	Mildred Lake Plant Site	Fort McMurray	AB	14.657	0.000	0.000	0.000	14.657
4316	North Atlantic Refining Ltd.	North Atlantic Refinery	Come by Chance	NF	13.308	0.000	0.077	0.000	13.385
4566	Pengrowth	Judy Creek Production Complex	Swan Hills	AB	12.789	0.000	0.000	0.000	12.789
3901	Petro-Canada	Oakville Refinery	Oakville	ON	11.138	0.000	0.000	0.000	11.138
3704	Imperial Oil	IOL Sarnia Refinery	Sarnia	ON	9.403	0.000	0.134	0.000	9.537

Dibutyl phthalate — CAS #: 84-74-2 — Total # of Reports: 15 — Total Releases (tonnes): 1.409

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
1207	DuPont Canada Inc.	Maitland Site	Maitland	ON	1.191	0.000	0.000	0.000	1.191

o-Dichlorobenzene — CAS #: 95-50-1 — Total # of Reports: 2 — Total Releases (tonnes): 2.200

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
0787	Napierville Refineries Inc.	Napierville	Napierville	QC	2.200	0.000	0.000	0.000	2.200

p-Dichlorobenzene — CAS #: 106-46-7 — Total # of Reports: 5 — Total Releases (tonnes): 10.640

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
0787	Napierville Refineries Inc.	Napierville	Napierville	QC	10.540	0.000	0.000	0.000	10.540

1,2-Dichloroethane — CAS #: 107-06-2 — Total # of Reports: 6 — Total Releases (tonnes): 27.300

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
0280	Dow Chemical Canada Inc.	Western Canada Operations	Fort Saskatchewan	AB	24.128	0.049	0.000	0.304	24.481
4646	Dow Chemical Canada Inc.	West Coast Distribution Centre	North Vancouver	BC	2.595	0.000	0.180	0.000	2.775

Dichloromethane — CAS #: 75-09-2 — Total # of Reports: 75 — Total Releases (tonnes): 2 388.935

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
2567	Carpenter Canada Co.		Woodbridge	ON	461.320	0.000	0.000	0.000	461.320
4552	Vitafoam Products Canada Ltd.	Vita-Toronto	Downsview	ON	266.460	0.000	0.000	0.000	266.460
2472	Novopharm Limited		Markham	ON	260.898	0.000	0.000	0.000	260.898
2601	Domfoam International Inc.	Domfoam	Saint-Léonard	QC	214.130	0.000	0.000	0.000	214.130
4428	Valle Foam Industries (1995) Inc.	Valle 1	Brampton	ON	196.713	0.000	0.000	0.000	196.713
2422	Foamex Canada Inc.	Foamex Toronto	Toronto	ON	154.903	0.000	0.000	0.000	154.903
5466	Foamex Canada Inc.	Montréal	Montréal	QC	136.899	0.000	0.000	0.000	136.899
5803	Elastocraft Ltd.		Mississauga	ON	98.000	0.000	0.000	0.000	98.000
2469	Novopharm Limited		Toronto	ON	96.588	0.000	0.000	0.000	96.588
0152	Carpenter Canada Co.	Calgary Division	Calgary	AB	94.803	0.000	0.000	0.000	94.803

Diethanolamine (and its salts) — CAS #: 111-42-2 — Total # of Reports: 74 — Total Releases (tonnes): 646.969

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
0683	Chevron Canada Resources	Kaybob South #3 Gas Plant	Fox Creek	AB	0.000	166.680	0.000	1.960	168.640
0409	Husky Oil Operations Limited	Husky Oil Lloydminster Upgrader	Lloydminster	SK	0.000	160.000	0.000	0.000	160.000
0407	Husky Oil Operations Limited	Ram River Gas Plant	Rocky Mountain House	AB	0.000	160.000	0.000	0.000	160.000
4138	Amoco Canada Petroleum Company	West Whitecourt Plant	na/so	AB	0.000	64.725	0.000	0.055	64.780
1902	Wascana Energy Inc. (Subsidiary of Canadian Occidental)	Balzac Gas Plant	Balzac	AB	0.272	26.698	0.000	0.101	27.071
2134	Agrium Products Inc.	Redwater Fertilizer Operations	Redwater/Municipal District of Sturgeon	AB	17.170	0.100	0.000	0.000	17.270
0686	Chevron Canada Resources	Acheson Sour Gas Plant	Spruce Grove	AB	0.000	15.680	0.000	0.000	15.680
3931	Ulster Petroleums Limited	Wimborne Gas Plant	Wimborne	AB	0.000	7.949	0.000	0.372	8.321
3928	Ultramar Ltée	Raffinerie Saint-Romuald	Saint-Romuald	QC	0.000	0.000	6.541	0.000	6.541
3962	Shell Canada Products Limited	Sarnia Manufacturing Centre	Corunna	ON	4.660	0.000	0.000	0.000	4.660

2,4-Dinitrotoluene — CAS #: 121-14-2 — Total # of Reports: 1 — Total Releases (tonnes): 1.190

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
0322	Produits chimiques Expro Inc.		Salaberry-de-Valleyfield	QC	0.000	0.000	1.190	0.000	1.190

1,4-Dioxane — CAS #: 123-91-1 — Total # of Reports: 5 — Total Releases (tonnes): 1.774

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
3793	Celanese Canada Inc.	Millhaven Facility	Ernestown	ON	0.271	0.000	1.100	0.000	1.371

2-Ethoxyethanol — CAS #: 110-80-5 — Total # of Reports: 6 — Total Releases (tonnes): 23.985

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
5627	Maple Roll Leaf	Maple Roll Leaf - Windsor	Windsor	ON	18.710	0.000	0.000	0.000	18.710
0092	CCL Industries Inc.	CCL Container Aerosol Div. Penetang	Penetanguishene	ON	5.265	0.000	0.000	0.000	5.265

2-Ethoxyethyl acetate — CAS #: 111-15-9 — Total # of Reports: 7 — Total Releases (tonnes): 4.250

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
5627	Maple Roll Leaf	Maple Roll Leaf - Windsor	Windsor	ON	3.839	0.000	0.000	0.000	3.839

Ethylbenzene — CAS #: 100-41-4 — Total # of Reports: 136 — Total Releases (tonnes): 749.233

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
1215	Ford Motor Company	Ontario Truck Plant	Oakville	ON	69.350	0.000	0.000	0.000	69.350
2274	Syncrude Canada Ltd.	Mildred Lake Plant Site	Fort McMurray	AB	65.253	0.000	0.000	0.000	65.253
3893	General Motors of Canada Limited	Oshawa Car Assembly Plant	Oshawa	ON	47.434	0.000	0.000	0.000	47.434
3883	Ford Motor Company	St. Thomas Assembly Plant	St. Thomas	ON	47.064	0.000	0.000	0.000	47.064
0397	Honda of Canada Mfg., a Div. of Honda Canada Inc.	Alliston Plant 1	Alliston	ON	46.900	0.000	0.000	0.000	46.900
2656	Ventra Plastics	Peterborough Facility	Peterborough	ON	38.454	0.000	0.000	0.000	38.454
0733	Paintplas Inc.	650 Finley Ave.	Ajax	ON	33.700	0.000	0.000	0.000	33.700
2176	Standard Products (Canada) Limited	Rubber Plant 1	Stratford	ON	33.300	0.000	0.000	0.000	33.300
3478	DaimlerChrysler AG	Pillette Road Truck Assembly Plant	Windsor	ON	24.738	0.000	0.000	0.000	24.738
3071	Sunoco Inc.	Sarnia Refinery	Sarnia	ON	24.343	0.000	0.016	0.000	24.359

Ethylene — CAS #: 74-85-1 — Total # of Reports: 43 — Total Releases (tonnes): 2 168.485

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
0126	AT Plastics Inc.	Edmonton Site	Edmonton	AB	333.624	0.000	0.000	0.000	333.624
3146	Dow Chemical Canada Inc.	Dow Chemical Canada Inc. - Sarnia	Sarnia	ON	237.509	0.000	0.000	0.000	237.509
1788	NOVA Chemicals Corporation	Moore Site	Sarnia	ON	213.871	0.000	0.000	0.000	213.871
2316	Union Carbide Canada Inc.	Prentiss Chemical Manufacturing Plant	Red Deer	AB	197.790	0.000	0.000	0.000	197.790
0280	Dow Chemical Canada Inc.	Western Canada Operations	Fort Saskatchewan	AB	183.616	0.000	0.000	0.000	183.616
1464	Imperial Oil	Sarnia Chemical Plant	Sarnia	ON	179.100	0.000	0.000	0.000	179.100
3634	Pétromont, société en commandite	Usine de Varennes	Varennes	QC	150.369	0.000	0.000	0.000	150.369
2274	Syncrude Canada Ltd.	Mildred Lake Plant Site	Fort McMurray	AB	112.625	0.000	0.000	0.000	112.625
3635	Pétromont, société en commandite	Usine de Montréal-Est	Montréal-Est	QC	69.920	0.000	0.000	0.000	69.920
1776	NOVA Chemicals (Canada) Ltd.	NOVA Chemicals (Canada) Ltd. - Corunna Site	Corunna	ON	63.000	0.000	0.000	0.000	63.000

2,4-Dinitrotoluene — CAS #: 121-14-2 — Total # of Reports: 1 — Total Releases (tonnes): 1.190

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
0322	Produits chimiques Expro Inc.		Salaberry-de-Valleyfield	QC	0.000	0.000	1.190	0.000	1.190

1,4-Dioxane — CAS #: 123-91-1 — Total # of Reports: 5 — Total Releases (tonnes): 1.774

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
3793	Celanese Canada Inc.	Millhaven Facility	Ernestown	ON	0.271	0.000	1.100	0.000	1.371

2-Ethoxyethanol — CAS #: 110-80-5 — Total # of Reports: 6 — Total Releases (tonnes): 23.985

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
5627	Maple Roll Leaf	Maple Roll Leaf - Windsor	Windsor	ON	18.710	0.000	0.000	0.000	18.710
0092	CCL Industries Inc.	CCL Container Aerosol Div. Penetang	Penetanguishene	ON	5.265	0.000	0.000	0.000	5.265

2-Ethoxyethyl acetate — CAS #: 111-15-9 — Total # of Reports: 7 — Total Releases (tonnes): 4.250

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
5627	Maple Roll Leaf	Maple Roll Leaf - Windsor	Windsor	ON	3.839	0.000	0.000	0.000	3.839

Ethylbenzene — CAS #: 100-41-4 — Total # of Reports: 136 — Total Releases (tonnes): 749.233

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
1215	Ford Motor Company	Ontario Truck Plant	Oakville	ON	69.350	0.000	0.000	0.000	69.350
2274	Syncrude Canada Ltd.	Mildred Lake Plant Site	Fort McMurray	AB	65.253	0.000	0.000	0.000	65.253
3893	General Motors of Canada Limited	Oshawa Car Assembly Plant	Oshawa	ON	47.434	0.000	0.000	0.000	47.434
3883	Ford Motor Company	St. Thomas Assembly Plant	St. Thomas	ON	47.064	0.000	0.000	0.000	47.064
0397	Honda of Canada Mfg., a Div. of Honda Canada Inc.	Alliston Plant 1	Alliston	ON	46.900	0.000	0.000	0.000	46.900
2656	Ventra Plastics	Peterborough Facility	Peterborough	ON	38.454	0.000	0.000	0.000	38.454
0733	Paintplas Inc.	650 Finley Ave.	Ajax	ON	33.700	0.000	0.000	0.000	33.700
2176	Standard Products (Canada) Limited	Rubber Plant 1	Stratford	ON	33.300	0.000	0.000	0.000	33.300
3478	DaimlerChrysler AG	Pillette Road Truck Assembly Plant	Windsor	ON	24.738	0.000	0.000	0.000	24.738
3071	Sunoco Inc.	Sarnia Refinery	Sarnia	ON	24.343	0.000	0.016	0.000	24.359

Ethylene — CAS #: 74-85-1 — Total # of Reports: 43 — Total Releases (tonnes): 2 168.485

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
0126	AT Plastics Inc.	Edmonton Site	Edmonton	AB	333.624	0.000	0.000	0.000	333.624
3146	Dow Chemical Canada Inc.	Dow Chemical Canada Inc. - Sarnia	Sarnia	ON	237.509	0.000	0.000	0.000	237.509
1788	NOVA Chemicals Corporation	Moore Site	Sarnia	ON	213.871	0.000	0.000	0.000	213.871
2316	Union Carbide Canada Inc.	Prentiss Chemical Manufacturing Plant	Red Deer	AB	197.790	0.000	0.000	0.000	197.790
0280	Dow Chemical Canada Inc.	Western Canada Operations	Fort Saskatchewan	AB	183.616	0.000	0.000	0.000	183.616
1464	Imperial Oil	Sarnia Chemical Plant	Sarnia	ON	179.100	0.000	0.000	0.000	179.100
3634	Pétromont, société en commandite	Usine de Varennes	Varennes	QC	150.369	0.000	0.000	0.000	150.369
2274	Syncrude Canada Ltd.	Mildred Lake Plant Site	Fort McMurray	AB	112.625	0.000	0.000	0.000	112.625
3635	Pétromont, société en commandite	Usine de Montréal-Est	Montréal-Est	QC	69.920	0.000	0.000	0.000	69.920
1776	NOVA Chemicals (Canada) Ltd.	NOVA Chemicals (Canada) Ltd. - Corunna Site	Corunna	ON	63.000	0.000	0.000	0.000	63.000

Ethylene glycol — CAS #: 107-21-1 — Total # of Reports: 322 — Total Releases (tonnes): 2 653.159

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
1427	Hudson General Aviation Services Inc.		Mississauga	ON	0.000	0.000	0.000	290.444	290.444
		Aeroport international de Québec	Sainte-Foy	QC	0.000	0.000	0.000	209.598	209.598
1012	Air Canada - Québec	Ottawa International Airport	Ottawa	ON	0.000	0.000	0.000	154.193	154.193
1006	Air Canada - Ottawa	Prentiss Chemical	Red Deer	AB	151.450	0.000	0.000	0.000	151.450
2316	Union Carbide Canada Inc.	Manufacturing Plant	Gloucester	ON	0.000	0.000	0.000	127.297	127.297
				AB	0.276	104.688	0.000	0.000	104.964
1426	Hudson General Aviation Services Inc.	Edmonton Refinery	Edmonton	NF	0.000	0.000	0.000	93.983	93.983
3903	Petro-Canada	St. John's International Airport	St. John's	ON	0.000	0.000	0.000	87.090	87.090
3838	Air Canada - St. John's	Pearson Airport Terminal 3	Mississauga	ON	0.000	0.000	0.000	84.670	84.670
4451	Canadian Airlines	Calgary International Airport	Calgary	AB	0.000	0.000	0.000	0.000	77.850
4457	Canadian Airlines	Gulf - Brazeau Gas Plant	Drayton Valley	AB	0.000	77.850	0.000	0.000	
1362	Gulf Midstream Services Ltd.								

Ethylene oxide — CAS #: 75-21-8 — Total # of Reports: 8 — Total Releases (tonnes): 22.359

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
0494	Chinook Group Limited	Sombra Operations	Sombra	ON	7.590	0.000	0.000	0.000	7.590
2316	Union Carbide Canada Inc.	Prentiss Chemical	Red Deer	AB	4.790	0.000	0.000	0.000	4.790
		Manufacturing Plant	Fort Saskatchewan	AB	4.367	0.000	0.000	0.000	4.367
		Western Canada Operations	Scarborough	ON	3.890	0.000	0.000	0.000	3.890
0280	Dow Chemical Canada Inc.	GMS Toronto Plant	Mississauga	ON	0.603	0.000	0.000	0.000	0.603
5644	Griffith Micro Science, Inc.	Cookswille Plant		ON	0.000	0.000	0.000	0.000	0.593
0800	Rhodia Canada Inc.	Dow Chemical Canada Inc. - Sarnia Sarnia							
3146	Dow Chemical Canada Inc.								

Formaldehyde — CAS #: 50-00-0 — Total # of Reports: 113 — Total Releases (tonnes): 1 656.299

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
2760	Weyerhaeuser Company Ltd.	Drayton Valley OSB Mill	Drayton Valley	AB	157.900	0.000	0.000	0.000	157.900
5609	Temple Inland Forest Products International Inc.	Temple Pembroke Inc.	Pembroke	ON	112.806	0.000	0.000	0.000	112.806
4830	Ranger Board		Blue Ridge	AB	104.147	0.000	0.000	0.000	104.147
2762	Weyerhaeuser Company Ltd.	Edson OSB	Edson	AB	88.090	0.000	0.000	0.000	88.090
0758	Uniboard Canada Inc.	Division Mont-Laurier	Mont-Laurier	QC	82.800	0.000	0.000	0.000	82.800
4880	Ainsworth Lumber Co. Ltd.	Grande Prairie	Grande Prairie	AB	77.132	0.000	0.000	0.000	77.132
4386	Malette Québec Inc.	Panneaux Malette OSB	Saint-Georges-de-Champlain	QC	76.070	0.000	0.000	0.000	76.070
4060	Uniboard Canada Inc.	Division Val-d'Or	Val-d'Or	QC	72.400	0.000	0.000	0.000	72.400
2764	Weyerhaeuser Company Ltd.	Slave Lake OSB	Slave Lake	AB	59.710	0.000	0.000	0.000	59.710
4842	Flakeboard Company Limited	Flakeboard	St. Stephen	NB	55.900	0.000	0.000	0.000	55.900

Hydrazine (and its salts) — CAS #: 302-01-2 — Total # of Reports: 3 — Total Releases (tonnes): 1.934

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
3808	Ontario Power Generation Inc.	Bruce Nuclear Power Development	Municipality of Bruce-Tiverton	ON	0.090	0.000	0.950	0.000	1.040
3161	Ontario Power Generation Inc.	Pickering Nuclear	Pickering	ON	0.004	0.000	0.500	0.000	0.504

Ethylene glycol — CAS #: 107-21-1 — Total # of Reports: 322 — Total Releases (tonnes): 2 653.159

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
1427	Hudson General Aviation Services Inc.		Mississauga	ON	0.000	0.000	0.000	290.444	290.444
1012	Air Canada - Québec	Aéroport international de Québec	Sainte-Foy	QC	0.000	0.000	0.000	209.598	209.598
1006	Air Canada - Ottawa	Ottawa International Airport	Ottawa	ON	0.000	0.000	0.000	154.193	154.193
2316	Union Carbide Canada Inc.	Prentiss Chemical Manufacturing Plant	Red Deer	AB	151.450	0.000	0.000	0.000	151.450
1426	Hudson General Aviation Services Inc.		Gloucester	ON	0.000	0.000	0.000	127.297	127.297
3903	Petro-Canada	Edmonton Refinery	Edmonton	AB	0.276	104.688	0.000	0.000	104.964
3838	Air Canada - St. John's	St. John's International Airport	St. John's	NF	0.000	0.000	0.000	93.983	93.983
4451	Canadian Airlines	Pearson Airport Terminal 3	Mississauga	ON	0.000	0.000	0.000	87.090	87.090
4457	Canadian Airlines	Calgary International Airport	Calgary	AB	0.000	0.000	0.000	84.670	84.670
1362	Gulf Midstream Services Ltd.	Gulf - Brazeau Gas Plant	Drayton Valley	AB	0.000	77.850	0.000	0.000	77.850

Ethylene oxide — CAS #: 75-21-8 — Total # of Reports: 8 — Total Releases (tonnes): 22.359

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
0494	Chinook Group Limited	Sombra Operations	Sombra	ON	7.590	0.000	0.000	0.000	7.590
2316	Union Carbide Canada Inc.	Prentiss Chemical Manufacturing Plant	Red Deer	AB	4.790	0.000	0.000	0.000	4.790
0280	Dow Chemical Canada Inc.	Western Canada Operations	Fort Saskatchewan	AB	4.367	0.000	0.000	0.000	4.367
5644	Griffith Micro Science, Inc.	GMS Toronto Plant	Scarborough	ON	3.890	0.000	0.000	0.000	3.890
0800	Rhodia Canada Inc.	Cooksville Plant	Mississauga	ON	0.603	0.000	0.000	0.000	0.603
3146	Dow Chemical Canada Inc.	Dow Chemical Canada Inc. - Sarnia	Sarnia	ON	0.000	0.000	0.000	0.000	0.593

Formaldehyde	CAS #: 50-00-0	Total # of Reports: 113						Total Releases (tonnes): 1 656.299
NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
2760	Weyerhaeuser Company Ltd.	Drayton Valley OSB Mill	Drayton Valley	AB	157.900	0.000	0.000	0.000	157.900
5609	Temple Inland Forest Products International Inc.	Temple Pembroke Inc.	Pembroke	ON	112.806	0.000	0.000	0.000	112.806
4830	Ranger Board		Blue Ridge	AB	104.147	0.000	0.000	0.000	104.147
2762	Weyerhaeuser Company Ltd.	Edson OSB	Edson	AB	88.090	0.000	0.000	0.000	88.090
0758	Uniboard Canada Inc.	Division Mont-Laurier	Mont-Laurier	QC	82.800	0.000	0.000	0.000	82.800
4880	Ainsworth Lumber Co. Ltd.	Grande Prairie	Grande Prairie	AB	77.132	0.000	0.000	0.000	77.132
4386	Malette Québec Inc.	Panneaux Malette OSB	Saint-Georges-de-Champlain	QC	76.070	0.000	0.000	0.000	76.070
4060	Uniboard Canada Inc.	Division Val-d'Or	Val-d'Or	QC	72.400	0.000	0.000	0.000	72.400
2764	Weyerhaeuser Company Ltd.	Slave Lake OSB	Slave Lake	AB	59.710	0.000	0.000	0.000	59.710
4842	Flakeboard Company Limited	Flakeboard	St. Stephen	NB	55.900	0.000	0.000	0.000	55.900

Hydrazine (and its salts)	CAS #: 302-01-2	Total # of Reports: 3						Total Releases (tonnes): 1.934
NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
3808	Ontario Power Generation Inc.	Bruce Nuclear Power Development	Municipality of Bruce-Tiverton	ON	0.090	0.000	0.950	0.000	1.040
3161	Ontario Power Generation Inc.	Pickering Nuclear	Pickering	ON	0.004	0.000	0.500	0.000	0.504

Hydrochloric acid — CAS #: 7647-01-0 — Total # of Reports: 311 — Total Releases (tonnes): 11 665.787

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
1861	Ontario Power Generation Inc.	Nanticoke Generating Station	Nanticoke	ON	4 619.998	0.000	0.000	0.000	4 619.998
3992	Nova Scotia Power Inc.	Lingan Generating Station	New Waterford	NS	1 365.000	0.000	0.000	0.000	1 365.000
2844	Ontario Power Generation Inc.	Lakeview GS	Mississauga	ON	1 233.168	0.000	0.000	0.000	1 233.168
1809	Ontario Power Generation Inc.	Lambton Generating Station	Courtright	ON	1 184.543	0.000	0.000	0.000	1 184.543
0723	Pacifica Papers Inc.	Pacifica Papers, Powell River	Powell River	BC	386.770	0.000	0.000	0.000	386.770
4000	Nova Scotia Power Inc.	Point Aconi Generating Station	Point Aconi	NS	340.000	0.000	0.000	0.000	340.000
1944	Bayer Inc.	Bayer Inc. Sarnia Site	Sarnia	ON	192.902	0.000	0.000	0.000	192.902
0821	Manitoba Hydro	Brandon Generating Station	Brandon	MB	167.630	0.000	0.000	0.000	167.630
5728	Royal Polymers Limited	Sarnia PVC Plant	Sarnia	ON	144.000	0.000	0.000	0.000	144.000
1036	Sheerness Generating Station		Hanna	AB	122.170	0.000	0.000	0.000	122.170

Hydrogen cyanide — CAS #: 74-90-8 — Total # of Reports: 3 — Total Releases (tonnes): 1 462.250

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
5808	Cabot Canada Ltd.		Sarnia	ON	1 416.200	0.000	0.000	0.000	1 416.200
1400	Battle Mountain Canada Ltd.	Golden Giant Mine	Marathon	ON	36.590	0.000	0.000	0.000	36.590
2548	Miramar Con Mine Ltd.	Con Mine	Yellowknife	NT	9.460	0.000	0.000	0.000	9.460

Hydrogen fluoride	CAS #: 7664-39-3	Total # of Reports: 51						Total Releases (tonnes): 3 541.969
NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
2788	Alcan Primary Metal	Kitimat Works	Kitimat	BC	635.000	0.000	0.000	0.000	635.000
2038	Société canadienne de métaux Reynolds Ltée	Aluminerie de Baie-Comeau	Baie-Comeau	QC	382.000	0.000	0.000	0.000	382.000
2284	TransAlta Utilities Corporation	Sundance Thermal Generating Plant	Duffield	AB	375.300	0.000	0.000	0.000	375.300
3406	Alcan Groupe Métal primaire	Usine Arvida	Jonquière	QC	284.770	0.000	0.000	0.000	284.770
1861	Ontario Power Generation Inc.	Nanticoke Generating Station	Nanticoke	ON	244.392	0.000	0.000	0.000	244.392
2282	TransAlta Utilities Corporation	Wabamun Thermal Generating Plant	Wabamun	AB	164.600	0.000	0.000	0.000	164.600
1071	Aluminerie de Bécancour Inc.		Bécancour	QC	153.000	0.000	0.000	0.000	153.000
2286	TransAlta Utilities Corporation	Keephills Thermal Generating Plant	Duffield	AB	134.028	0.000	0.000	0.000	134.028
1036	Sheerness Generating Station		Hanna	AB	110.160	0.000	0.000	0.000	110.160
4782	Aluminerie Lauralco Inc.	Usine de Deschambault	Deschambault	QC	100.000	0.000	0.000	0.000	100.000

Hydroquinone (and its salts)	CAS #: 123-31-9	Total # of Reports: 2						Total Releases (tonnes): 0.700
NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
4899	Deluxe Toronto		Toronto	ON	0.000	0.000	0.000	0.000	0.700

Hydrochloric acid — CAS #: 7647-01-0 — Total # of Reports: 311 — Total Releases (tonnes): 11 665.787

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
1861	Ontario Power Generation Inc.	Nanticoke Generating Station	Nanticoke	ON	4 619.998	0.000	0.000	0.000	4 619.998
3992	Nova Scotia Power Inc.	Lingan Generating Station	New Waterford	NS	1 365.000	0.000	0.000	0.000	1 365.000
2844	Ontario Power Generation Inc.	Lakeview GS	Mississauga	ON	1 233.168	0.000	0.000	0.000	1 233.168
1809	Ontario Power Generation Inc.	Lambton Generating Station	Courtright	ON	1 184.543	0.000	0.000	0.000	1 184.543
0723	Pacifica Papers Inc.	Pacifica Papers, Powell River	Powell River	BC	386.770	0.000	0.000	0.000	386.770
4000	Nova Scotia Power Inc.	Point Aconi Generating Station	Point Aconi	NS	340.000	0.000	0.000	0.000	340.000
1944	Bayer Inc.	Bayer Inc. Sarnia Site	Sarnia	ON	192.902	0.000	0.000	0.000	192.902
0821	Manitoba Hydro	Brandon Generating Station	Brandon	MB	167.630	0.000	0.000	0.000	167.630
5728	Royal Polymers Limited	Sarnia PVC Plant	Sarnia	ON	144.000	0.000	0.000	0.000	144.000
1036	Sheerness Generating Station		Hanna	AB	122.170	0.000	0.000	0.000	122.170

Hydrogen cyanide — CAS #: 74-90-8 — Total # of Reports: 3 — Total Releases (tonnes): 1 462.250

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
5808	Cabot Canada Ltd.		Sarnia	ON	1 416.200	0.000	0.000	0.000	1 416.200
1400	Battle Mountain Canada Ltd.	Golden Giant Mine	Marathon	ON	36.590	0.000	0.000	0.000	36.590
2548	Miramar Con Mine Ltd.	Con Mine	Yellowknife	NT	9.460	0.000	0.000	0.000	9.460

Hydrogen fluoride — CAS #: 7664-39-3 — Total # of Reports: 51 — Total Releases (tonnes): 3 541.969

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
2788	Alcan Primary Metal	Kitimat Works	Kitimat	BC	635.000	0.000	0.000	0.000	635.000
2038	Société canadienne de métaux Reynolds Ltée	Aluminerie de Baie-Comeau	Baie-Comeau	QC	382.000	0.000	0.000	0.000	382.000
2284	TransAlta Utilities Corporation	Sundance Thermal Generating Plant	Duffield	AB	375.300	0.000	0.000	0.000	375.300
3406	Alcan Groupe Métal primaire	Usine Arvida	Jonquière	QC	284.770	0.000	0.000	0.000	284.770
1861	Ontario Power Generation Inc.	Nanticoke Generating Station	Nanticoke	ON	244.392	0.000	0.000	0.000	244.392
2282	TransAlta Utilities Corporation	Wabamun Thermal Generating Plant	Wabamun	AB	164.600	0.000	0.000	0.000	164.600
1071	Aluminerie de Bécancour Inc.		Bécancour	QC	153.000	0.000	0.000	0.000	153.000
2286	TransAlta Utilities Corporation	Keephills Thermal Generating Plant	Duffield	AB	134.028	0.000	0.000	0.000	134.028
1036	Sheerness Generating Station		Hanna	AB	110.160	0.000	0.000	0.000	110.160
4782	Aluminerie Lauralco Inc.	Usine de Deschambault	Deschambault	QC	100.000	0.000	0.000	0.000	100.000

Hydroquinone (and its salts) — CAS #: 123-31-9 — Total # of Reports: 2 — Total Releases (tonnes): 0.700

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
4899	Deluxe Toronto		Toronto	ON	0.000	0.000	0.000	0.000	0.700

Isopropyl alcohol — CAS #: 67-63-0 — Total # of Reports: 217 — Total Releases (tonnes): 1 970.434

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
3609	North American Decorative Products Inc.	Canadian Plant	Brampton	ON	154.987	0.000	0.000	0.000	154.987
1516	Intertape Polymer Group	Woven Products Truro Plant	Truro	NS	139.500	0.000	0.000	0.000	139.500
3893	General Motors of Canada Limited	Oshawa Car Assembly Plant	Oshawa	ON	94.986	0.000	0.000	0.000	94.986
1863	Packall Packaging Inc.		Mississauga	ON	70.000	0.000	0.000	0.000	70.000
0358	Glopak Inc.	Usine	Montréal	QC	43.500	0.000	0.000	0.000	43.500
4734	Consoltex Inc.		Alexandria	ON	42.921	0.000	0.000	0.000	42.921
2125	Shell Chemicals Canada Ltd.	Sarnia IPA Plant	Corunna	ON	42.800	0.000	0.000	0.000	42.800
0371	Sonoco Flexible Packaging (prev. Graphic Packaging)	Richmond Plant	Richmond	BC	42.500	0.000	0.000	0.000	42.500
3883	Ford Motor Company	St. Thomas Assembly Plant	St. Thomas	ON	42.057	0.000	0.000	0.000	42.057
0135	Bonar Packaging	Plastics Division	Burlington	ON	40.248	0.000	0.000	0.000	40.248

Lead (and its compounds) — CAS #: N/A — Total # of Reports: 192 — Total Releases (tonnes): 3 495.282

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
2537	Safety-Kleen Ltd.	Lambton Facility	Corunna	ON	0.000	0.000	0.000	2 263.600	2 263.600
3649	Ispat Sidbec Inc.	Aciérie	Contrecoeur	QC	0.850	0.000	0.156	176.470	177.476
3414	Hudson Bay Mining and Smelting Company Ltd.	HBM&S Co., Ltd. - Metallurgical Complex	Flin Flon	MB	172.570	0.000	0.543	0.000	173.113
3623	Noranda Inc.	Fonderie Horne	Rouyn-Noranda	QC	115.300	0.000	0.117	0.000	115.417
3655	Ispat Sidbec Inc.	Sidbec-Feruni (Ispat) Inc. Contrecoeur	Contrecoeur	QC	0.000	0.000	0.002	87.030	87.032
0444	Inco Limited	Copper Cliff Smelter Complex	Copper Cliff	ON	80.670	0.000	0.000	0.000	80.670
3824	Co-Steel Lasco		Whitby	ON	0.878	0.000	0.033	74.207	75.118
1651	Gerdau MRM Steel Inc.	MRM Steel	Selkirk	MB	0.424	0.000	0.001	69.712	70.137
5246	Gerdau MRM Steel Inc.	Mandak Metal Processors	Selkirk	MB	0.000	0.000	0.000	53.701	53.701
4204	Sydney Steel Corporation	Sydney Steel Corp.	Sydney	NS	0.000	0.000	0.070	48.600	48.670

Maleic anhydride	CAS #: 108-31-6	Total # of Reports: 15					Total Releases (tonnes): 1.467
NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
0800	Rhodia Canada Inc.	Cooksville Plant	Mississauga	ON	0.500	0.000	0.000	0.000	0.500

Manganese (and its compounds)	CAS #: N/A	Total # of Reports: 376					Total Releases (tonnes): 4 141.918
NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
2537	Safety-Kleen Ltd.	Lambton Facility	Corunna	ON	0.000	0.000	0.000	565.900	565.900
1036	Sheerness Generating Station		Hanna	AB	0.000	0.000	0.000	271.300	271.300
2284	TransAlta Utilities Corporation	Sundance Thermal Generating Plant	Duffield	AB	0.704	0.000	0.000	215.224	215.928
3649	Ispat Sidbec Inc.	Aciérie	Contrecoeur	QC	0.000	0.000	0.000	177.730	177.730
3824	Co-Steel Lasco		Whitby	ON	0.925	0.000	1.310	164.844	167.079
1651	Gerdau MRM Steel Inc.	MRM Steel	Selkirk	MB	2.862	0.000	0.035	161.417	164.314
3242	Produits forestiers Donohue Inc.	Usine de pâte kraft	Saint-Félicien	QC	0.000	0.000	74.000	70.000	144.000
0606	Esco Limited		Port Coquitlam	BC	0.870	0.000	0.000	124.470	125.340
1383	Pope & Talbot Ltd.	Harmac Operations	Nanaimo	BC	0.123	0.000	34.566	77.426	112.115
2286	TransAlta Utilities Corporation	Keephills Thermal Generating Plant	Duffield	AB	0.196	0.000	0.000	109.297	109.493

Mercury (and its compounds)	CAS #: N/A	Total # of Reports: 18					Total Releases (tonnes): 3.608
NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
0770	Regional Municipality of Ottawa-Carleton	Robert O. Pickard Environmental Centre	Gloucester	ON	0.000	0.000	1.740	0.000	1.740
3414	Hudson Bay Mining and Smelting Company Ltd.	HBM&S Co., Ltd. - Metallurgical Complex	Flin Flon	MB	1.434	0.000	0.000	0.000	1.434

Isopropyl alcohol — CAS #: 67-63-0 — Total # of Reports: 217 — Total Releases (tonnes): 1 970.434

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
3609	North American Decorative Products Inc.	Canadian Plant	Brampton	ON	154.987	0.000	0.000	0.000	154.987
1516	Intertape Polymer Group	Woven Products Truro Plant	Truro	NS	139.500	0.000	0.000	0.000	139.500
3893	General Motors of Canada Limited	Oshawa Car Assembly Plant	Oshawa	ON	94.986	0.000	0.000	0.000	94.986
1863	Packall Packaging Inc.		Mississauga	ON	70.000	0.000	0.000	0.000	70.000
0358	Glopak Inc.	Usine	Montréal	QC	43.500	0.000	0.000	0.000	43.500
4734	Consoltex Inc.		Alexandria	ON	42.921	0.000	0.000	0.000	42.921
2125	Shell Chemicals Canada Ltd.	Sarnia IPA Plant	Corunna	ON	42.800	0.000	0.000	0.000	42.800
0371	Sono a Flexible Packaging (prev. Graphic Packaging)	Richmond Plant	Richmond	BC	42.500	0.000	0.000	0.000	42.500
3883	Ford Motor Company	St. Thomas Assembly Plant	St. Thomas	ON	42.057	0.000	0.000	0.000	42.057
0135	Bonar Packaging	Plastics Division	Burlington	ON	40.248	0.000	0.000	0.000	40.248

Lead (and its compounds) — CAS #: N/A — Total # of Reports: 192 — Total Releases (tonnes): 3 495.282

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
2537	Safety-Kleen Ltd.	Lambton Facility	Corunna	ON	0.000	0.000	0.000	2 263.600	2 263.600
3649	Ispat Sidbec Inc.	Aciérie	Contrecoeur	QC	0.850	0.000	0.156	176.470	177.476
3414	Hudson Bay Mining and Smelting Company Ltd.	HBM&S Co., Ltd. - Metallurgical Complex	Flin Flon	MB	172.570	0.000	0.543	0.000	173.113
3623	Noranda Inc.	Fonderie Horne	Rouyn-Noranda	QC	115.300	0.000	0.117	0.000	115.417
3655	Ispat Sidbec Inc.	Sidbec-Feruni (Ispat) Inc. Contrecoeur	Contrecoeur	QC	0.000	0.000	0.002	87.030	87.032
0444	Inco Limited	Copper Cliff Smelter Complex	Copper Cliff	ON	80.670	0.000	0.000	0.000	80.670
3824	Co-Steel Lasco		Whitby	ON	0.878	0.000	0.033	74.207	75.118
1651	Gerdau MRM Steel Inc.	MRM Steel	Selkirk	MB	0.424	0.000	0.001	69.712	70.137
5246	Gerdau MRM Steel Inc.	Mandak Metal Processors	Selkirk	MB	0.000	0.000	0.000	53.701	53.701
4204	Sydney Steel Corporation	Sydney Steel Corp.	Sydney	NS	0.000	0.000	0.070	48.600	48.670

Maleic anhydride — CAS #: 108-31-6 — Total # of Reports: 15 — Total Releases (tonnes): 1.467

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
0800	Rhodia Canada Inc.	Cooksville Plant	Mississauga	ON	0.500	0.000	0.000	0.000	0.500

Manganese (and its compounds) — CAS #: N/A — Total # of Reports: 376 — Total Releases (tonnes): 4 141.918

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
2537	Safety-Kleen Ltd.	Lambton Facility	Corunna	ON	0.000	0.000	0.000	565.900	565.900
1036	Sheerness Generating Station		Hanna	AB	0.000	0.000	0.000	271.300	271.300
2284	TransAlta Utilities Corporation	Sundance Thermal Generating Plant	Duffield	AB	0.704	0.000	0.000	215.224	215.928
3649	Ispat Sidbec Inc.	Aciérie	Contrecoeur	QC	0.000	0.000	0.000	177.730	177.730
3824	Co-Steel Lasco		Whitby	ON	0.925	0.000	1.310	164.844	167.079
1651	Gerdau MRM Steel Inc.	MRM Steel	Selkirk	MB	2.862	0.000	0.035	161.417	164.314
3242	Produits forestiers Donohue Inc.	Usine de pâte kraft	Saint-Félicien	QC	0.000	0.000	74.000	70.000	144.000
0606	Esco Limited		Port Coquitlam	BC	0.870	0.000	0.000	124.470	125.340
1383	Pope & Talbot Ltd.	Harmac Operations	Nanaimo	BC	0.123	0.000	34.566	77.426	112.115
2286	TransAlta Utilities Corporation	Keephills Thermal Generating Plant	Duffield	AB	0.196	0.000	0.000	109.297	109.493

Mercury (and its compounds) — CAS #: N/A — Total # of Reports: 18 — Total Releases (tonnes): 3.608

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
0770	Regional Municipality of Ottawa-Carleton	Robert O. Pickard Environmental Centre	Gloucester	ON	0.000	0.000	1.740	0.000	1.740
3414	Hudson Bay Mining and Smelting Company Ltd.	HBM&S Co., Ltd. - Metallurgical Complex	Flin Flon	MB	1.434	0.000	0.000	0.000	1.434

Methanol — CAS #: 67-56-1 — Total # of Reports: 415 — Total Releases (tonnes): 26 775.242

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
0930	Bowater Pulp and Paper Canada Inc.	Thunder Bay Operations	Thunder Bay	ON	1 424.480	0.000	0.000	0.000	1 424.480
1162	Celanese Canada Inc.	Edmonton Facility	Edmonton	AB	70.530	1 300.000	0.000	0.000	1 370.530
1221	Fraser Papers Inc. (Canada)	Edmundston Operations	Edmundston	NB	973.166	0.000	23.010	19.958	1 016.134
2051	Tolko Manitoba		The Pas	MB	1 001.195	0.000	14.028	0.339	1 015.562
2604	Irving Pulp & Paper Limited / Irving Tissue Company		Saint John	NB	236.420	0.000	681.600	0.000	918.020
0333	Fletcher Challenge Canada	Elk Falls Mill	Campbell River	BC	790.600	0.000	0.000	0.000	790.600
1797	Canadian Forest Products Ltd.	Northwood Pulp Mill	Prince George	BC	610.491	0.000	68.235	1.286	680.012
3821	Canadian Fertilizers Limited		Medicine Hat	AB	607.990	0.000	0.000	0.000	607.990
0928	Weyerhaeuser Company Limited	Weyerhaeuser Dryden Mill Operations	Dryden	ON	488.138	0.000	53.364	1.154	542.656
2607	Kimberly-Clark Corporation	Kimberly Clark Forest Products, Inc.	Terrace Bay	ON	469.200	0.000	56.100	0.000	525.300

2-Methoxyethanol — CAS #: 109-86-4 — Total # of Reports: 3 — Total Releases (tonnes): 8.151

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
4751	Knoll North America Corp.	Main Plant	Toronto	ON	8.051	0.000	0.000	0.000	8.051

Methyl acrylate — CAS #: 96-33-3 — Total # of Reports: 4 — Total Releases (tonnes): 0.919

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
3847	CYRO Canada Inc.		Niagara Falls	ON	0.840	0.000	0.000	0.000	0.840

Methyl *tert*-butyl ether — CAS #: 1634-04-4 — Total # of Reports: 6 — Total Releases (tonnes): 124.198

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
2776	Chevron Canada Limited		Burnaby	BC	55.500	0.000	0.000	0.000	55.500
4316	North Atlantic Refining Ltd.	North Atlantic Refinery	Come by Chance	NF	38.947	0.000	0.000	0.000	38.947
3974	Alberta Envirofuels Inc.		Edmonton	AB	13.916	0.000	0.000	0.085	14.001
4101	Irving Oil Limited	Refining Division	Saint John	NB	10.236	0.000	0.000	0.000	10.236
3698	Imperial Oil	IOL Dartmouth	Dartmouth	NS	3.875	0.000	0.000	0.000	3.875
3905	Petro-Canada	Burrard Products Terminal	Port Moody	BC	1.639	0.000	0.000	0.000	1.639

Methylene*bis*(phenylisocyanate) — CAS #: 101-68-8 — Total # of Reports: 63 — Total Releases (tonnes): 4.630

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
4523	Collins & Aikman Plastics Ltd.	Stratford	Stratford	ON	0.940	0.000	0.000	0.000	0.940
5847	Flexible Products Company of Canada		Richmond Hill	ON	0.000	0.000	0.000	0.000	0.827
4892	Weyerhaeuser Company Limited	Wawa OSB	Wawa	ON	0.510	0.000	0.000	0.000	0.510

Methyl ethyl ketone — CAS #: 78-93-3 — Total # of Reports: 181 — Total Releases (tonnes): 5 876.270

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
1162	Celanese Canada Inc.	Edmonton Facility	Edmonton	AB	106.000	790.000	0.000	0.000	896.000
2263	Imperial Home Decor Group ULC	IHDG Brampton	Brampton	ON	717.000	0.000	0.000	0.000	717.000
0741	Morbern Inc.		Cornwall	ON	651.950	0.000	0.000	0.000	651.950
3475	Canadian General-Tower Ltd.		Cambridge	ON	581.845	0.000	0.000	0.000	581.845
2656	Ventra Plastics	Peterborough Facility	Peterborough	ON	434.075	0.000	0.000	0.000	434.075
5627	Maple Roll Leaf	Maple Roll Leaf - Windsor	Windsor	ON	277.491	0.000	0.000	0.000	277.491
3759	International Wallcoverings Ltd.	Brampton Plant	Brampton	ON	241.529	0.000	0.000	0.000	241.529
4210	Velcro Canada Inc.		Brampton	ON	160.000	0.000	0.000	0.000	160.000
4465	Flexible Packaging Corporation		Scarborough	ON	120.330	0.000	0.000	0.000	120.330
5495	Winpak Heat Seal Packaging Inc.		Vaudreuil	QC	105.000	0.000	0.000	0.000	105.000

Methanol — CAS #: 67-56-1 — Total # of Reports: 415 — Total Releases (tonnes): 26 775.242

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
0930	Bowater Pulp and Paper Canada Inc.	Thunder Bay Operations	Thunder Bay	ON	1 424.480	0.000	0.000	0.000	1 424.480
1162	Celanese Canada Inc.	Edmonton Facility	Edmonton	AB	70.530	1 300.000	0.000	0.000	1 370.530
1221	Fraser Papers Inc. (Canada)	Edmundston Operations	Edmundston	NB	973.166	0.000	23.010	19.958	1 016.134
2051	Tolko Manitoba		The Pas	MB	1 001.195	0.000	14.028	0.339	1 015.562
2604	Irving Pulp & Paper Limited / Irving Tissue Company		Saint John	NB	236.420	0.000	681.600	0.000	918.020
0333	Fletcher Challenge Canada	Elk Falls Mill	Campbell River	BC	790.600	0.000	0.000	0.000	790.600
1797	Canadian Forest Products Ltd.	Northwood Pulp Mill	Prince George	BC	610.491	0.000	68.235	1.286	680.012
3821	Canadian Fertilizers Limited		Medicine Hat	AB	607.990	0.000	0.000	0.000	607.990
0928	Weyerhaeuser Company Limited	Weyerhaeuser Dryden Mill Operations	Dryden	ON	488.138	0.000	53.364	1.154	542.656
2607	Kimberly-Clark Corporation	Kimberly Clark Forest Products, Inc.	Terrace Bay	ON	469.200	0.000	56.100	0.000	525.300

2-Methoxyethanol — CAS #: 109-86-4 — Total # of Reports: 3 — Total Releases (tonnes): 8.151

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
4751	Knoll North America Corp.	Main Plant	Toronto	ON	8.051	0.000	0.000	0.000	8.051

Methyl acrylate — CAS #: 96-33-3 — Total # of Reports: 4 — Total Releases (tonnes): 0.919

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
3847	CYRO Canada Inc.		Niagara Falls	ON	0.840	0.000	0.000	0.000	0.840

Methyl *tert*-butyl ether — CAS #: 1634-04-4 — Total # of Reports: 6 — Total Releases (tonnes): 124.198

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
2776	Chevron Canada Limited		Burnaby	BC	55.500	0.000	0.000	0.000	55.500
4316	North Atlantic Refining Ltd.	North Atlantic Refinery	Come by Chance	NF	38.947	0.000	0.000	0.000	38.947
3974	Alberta Envirofuels Inc.		Edmonton	AB	13.916	0.000	0.000	0.085	14.001
4101	Irving Oil Limited	Refining Division	Saint John	NB	10.236	0.000	0.000	0.000	10.236
3698	Imperial Oil	IOL Dartmouth	Dartmouth	NS	3.875	0.000	0.000	0.000	3.875
3905	Petro-Canada	Burrard Products Terminal	Port Moody	BC	1.639	0.000	0.000	0.000	1.639

Methylene*bis*(phenylisocyanate) — CAS #: 101-68-8 — Total # of Reports: 63 — Total Releases (tonnes): 4.630

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
4523	Collins & Aikman Plastics Ltd.	Stratford	Stratford	ON	0.940	0.000	0.000	0.000	0.940
5847	Flexible Products Company of Canada		Richmond Hill	ON	0.000	0.000	0.000	0.000	0.827
4892	Weyerhaeuser Company Limited	Wawa OSB	Wawa	ON	0.510	0.000	0.000	0.000	0.510

Methyl ethyl ketone — CAS #: 78-93-3 — Total # of Reports: 181 — Total Releases (tonnes): 5 876.270

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
1162	Celanese Canada Inc.	Edmonton Facility	Edmonton	AB	106.000	790.000	0.000	0.000	896.000
2263	Imperial Home Decor Group ULC	IHDG Brampton	Brampton	ON	717.000	0.000	0.000	0.000	717.000
0741	Morbern Inc.		Cornwall	ON	651.950	0.000	0.000	0.000	651.950
3475	Canadian General-Tower Ltd.		Cambridge	ON	581.845	0.000	0.000	0.000	581.845
2656	Ventra Plastics	Peterborough Facility	Peterborough	ON	434.075	0.000	0.000	0.000	434.075
5627	Maple Roll Leaf	Maple Roll Leaf - Windsor	Windsor	ON	277.491	0.000	0.000	0.000	277.491
3759	International Wallcoverings Ltd.	Brampton Plant	Brampton	ON	241.529	0.000	0.000	0.000	241.529
4210	Velcro Canada Inc.		Brampton	ON	160.000	0.000	0.000	0.000	160.000
4465	Flexible Packaging Corporation		Scarborough	ON	120.330	0.000	0.000	0.000	120.330
5495	Winpak Heat Seal Packaging Inc.		Vaudreuil	QC	105.000	0.000	0.000	0.000	105.000

Methyl isobutyl ketone — CAS #: 108-10-1 — Total # of Reports: 81 — Total Releases (tonnes): 710.128

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
3870	General Motors of Canada Limited	Oshawa Truck Assembly Centre	Oshawa	ON	67.146	0.000	0.000	0.000	67.146
3883	Ford Motor Company	St. Thomas Assembly Plant	St. Thomas	ON	61.062	0.000	0.000	0.000	61.062
3893	General Motors of Canada Limited	Oshawa Car Assembly Plant	Oshawa	ON	51.992	0.000	0.000	0.000	51.992
3704	Imperial Oil	IOL Sarnia Refinery	Sarnia	ON	48.580	0.000	0.000	0.000	48.580
4849	Tarxien Components Corporation	Paint Facility	Concord	ON	46.623	0.000	0.000	0.000	46.623
3759	International Wallcoverings Ltd.	Brampton Plant	Brampton	ON	44.813	0.000	0.000	0.000	44.813
3419	Ford Motor Company	Oakville Assembly Plant	Oakville	ON	44.218	0.000	0.000	0.000	44.218
1215	Ford Motor Company	Ontario Truck Plant	Oakville	ON	38.187	0.000	0.000	0.000	38.187
3790	Toyota Motor Manufacturing Canada Inc.		Cambridge	ON	35.317	0.000	0.000	0.000	35.317
2656	Ventra Plastics	Peterborough Facility	Peterborough	ON	34.095	0.000	0.000	0.000	34.095

Methyl methacrylate — CAS #: 80-62-6 — Total # of Reports: 17 — Total Releases (tonnes): 20.164

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
3847	CYRO Canada Inc.		Niagara Falls	ON	8.946	0.000	0.000	1.360	10.306
5605	Unicell Ltd.	Toronto	Toronto	ON	7.600	0.000	0.000	0.000	7.600
0361	Graham Products Ltd.		Inglewood	ON	1.350	0.000	0.000	0.000	1.350

Molybdenum trioxide — CAS #: 1313-27-5 — Total # of Reports: 16 — Total Releases (tonnes): 2.481

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
4650	Catalyst Recovery Canada Ltd.	CRCL - Medicine Hat	Medicine Hat	AB	1.607	0.000	0.000	0.000	1.607

Naphthalene	CAS #: 91-20-3	Total # of Reports: 52						Total Releases (tonnes): 59.057
NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
2070	VFT Inc.		Hamilton	ON	14.720	0.000	0.000	0.000	14.720
3713	Dofasco Inc.	Dofasco Hamilton	Hamilton	ON	9.150	0.000	0.010	0.000	9.160
0787	Napierville Refineries Inc.	Napierville	Napierville	QC	5.820	0.000	0.000	0.000	5.820
2984	Stelco Inc.	Hilton Works	Hamilton	ON	4.700	0.000	0.020	0.000	4.720
1070	Algoma Steel Inc.		Sault Ste. Marie	ON	2.641	0.000	0.000	0.000	2.641
3899	Petro-Canada	Mississauga Lubricant Center	Mississauga	ON	2.484	0.000	0.000	0.000	2.484
3962	Shell Canada Products Limited	Sarnia Manufacturing Centre	Corunna	ON	2.281	0.000	0.000	0.044	2.325
0409	Husky Oil Operations Limited	Husky Oil Lloydminster Upgrader	Lloydminster	SK	1.857	0.002	0.000	0.000	1.859
3855	Lake Erie Steel Company		Nanticoke	ON	1.798	0.000	0.000	0.000	1.798
3707	Imperial Oil	IOL Strathcona Refinery	Edmonton	AB	1.486	0.041	0.003	0.000	1.530

Nickel (and its compounds)	CAS #: N/A	Total # of Reports: 217						Total Releases (tonnes): 606.926
NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
1467	Inco Limited	Copper Cliff Nickel Refinery	Copper Cliff	ON	122.200	0.000	0.000	0.000	122.200
0444	Inco Limited	Copper Cliff Smelter Complex	Copper Cliff	ON	84.390	0.000	0.000	0.000	84.390
1473	Inco Limited	Manitoba Division	Thompson	MB	69.639	0.000	8.986	0.000	78.625
1861	Ontario Power Generation Inc.	Nanticoke Generating Station	Nanticoke	ON	0.927	0.000	0.097	37.892	38.916
1809	Ontario Power Generation Inc.	Lambton Generating Station	Courtright	ON	0.328	0.000	0.014	35.369	35.711
1471	Inco Limited	Inco Limited Port Colborne Refinery	Port Colborne	ON	0.562	0.000	0.616	30.510	31.688
1696	New Brunswick Power	Coleson Cove Generating Station	Saint John	NB	4.990	0.000	0.054	24.880	29.924
3704	Imperial Oil	IOL Sarnia Refinery	Sarnia	ON	25.724	0.000	0.028	1.616	27.368
2284	TransAlta Utilities Corporation	Sundance Thermal Generating Plant	Duffield	AB	0.072	0.000	0.000	21.834	21.906
4316	North Atlantic Refining Ltd.	North Atlantic Refinery	Come by Chance	NF	17.276	0.000	0.000	0.000	17.276

Methyl isobutyl ketone — CAS #: 108-10-1 — Total # of Reports: 81 — Total Releases (tonnes): 710.128

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
3870	General Motors of Canada Limited	Oshawa Truck Assembly Centre	Oshawa	ON	67.146	0.000	0.000	0.000	67.146
3883	Ford Motor Company	St. Thomas Assembly Plant	St. Thomas	ON	61.062	0.000	0.000	0.000	61.062
3893	General Motors of Canada Limited	Oshawa Car Assembly Plant	Oshawa	ON	51.992	0.000	0.000	0.000	51.992
3704	Imperial Oil	IOL Sarnia Refinery	Sarnia	ON	48.580	0.000	0.000	0.000	48.580
4849	Tarxien Components Corporation	Paint Facility	Concord	ON	46.623	0.000	0.000	0.000	46.623
3759	International Wallcoverings Ltd.	Brampton Plant	Brampton	ON	44.813	0.000	0.000	0.000	44.813
3419	Ford Motor Company	Oakville Assembly Plant	Oakville	ON	44.218	0.000	0.000	0.000	44.218
1215	Ford Motor Company	Ontario Truck Plant	Oakville	ON	38.187	0.000	0.000	0.000	38.187
3790	Toyota Motor Manufacturing Canada Inc.		Cambridge	ON	35.317	0.000	0.000	0.000	35.317
2656	Ventra Plastics	Peterborough Facility	Peterborough	ON	34.095	0.000	0.000	0.000	34.095

Methyl methacrylate — CAS #: 80-62-6 — Total # of Reports: 17 — Total Releases (tonnes): 20.164

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
3847	CYRO Canada Inc.		Niagara Falls	ON	8.946	0.000	0.000	1.360	10.306
5605	Unicell Ltd.	Toronto	Toronto	ON	7.600	0.000	0.000	0.000	7.600
0361	Graham Products Ltd.		Inglewood	ON	1.350	0.000	0.000	0.000	1.350

Molybdenum trioxide — CAS #: 1313-27-5 — Total # of Reports: 16 — Total Releases (tonnes): 2.481

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
4650	Catalyst Recovery Canada Ltd.	CRCL - Medicine Hat	Medicine Hat	AB	1.607	0.000	0.000	0.000	1.607

Naphthalene — CAS #: 91-20-3 — Total # of Reports: 52 — Total Releases (tonnes): 59.057

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
2070	VFT Inc.		Hamilton	ON	14.720	0.000	0.000	0.000	14.720
3713	Dofasco Inc.	Dofasco Hamilton	Hamilton	ON	9.150	0.000	0.010	0.000	9.160
0787	Napierville Refineries Inc.	Napierville	Napierville	QC	5.820	0.000	0.000	0.000	5.820
2984	Stelco Inc.	Hilton Works	Hamilton	ON	4.700	0.000	0.020	0.000	4.720
1070	Algoma Steel Inc.		Sault Ste. Marie	ON	2.641	0.000	0.000	0.000	2.641
3899	Petro-Canada	Mississauga Lubricant Center	Mississauga	ON	2.484	0.000	0.000	0.000	2.484
3962	Shell Canada Products Limited	Sarnia Manufacturing Centre	Corunna	ON	2.281	0.000	0.000	0.044	2.325
0409	Husky Oil Operations Limited	Husky Oil Lloydminster Upgrader	Lloydminster	SK	1.857	0.002	0.000	0.000	1.859
3855	Lake Erie Steel Company		Nanticoke	ON	1.798	0.000	0.000	0.000	1.798
3707	Imperial Oil	IOL Strathcona Refinery	Edmonton	AB	1.486	0.041	0.003	0.000	1.530

Nickel (and its compounds) — CAS #: N/A — Total # of Reports: 217 — Total Releases (tonnes): 606.926

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
1467	Inco Limited	Copper Cliff Nickel Refinery	Copper Cliff	ON	122.200	0.000	0.000	0.000	122.200
0444	Inco Limited	Copper Cliff Smelter Complex	Copper Cliff	ON	84.390	0.000	0.000	0.000	84.390
1473	Inco Limited	Manitoba Division	Thompson	MB	69.639	0.000	8.986	0.000	78.625
1861	Ontario Power Generation Inc.	Nanticoke Generating Station	Nanticoke	ON	0.927	0.000	0.097	37.892	38.916
1809	Ontario Power Generation Inc.	Lambton Generating Station	Courtright	ON	0.328	0.000	0.014	35.369	35.711
1471	Inco Limited	Inco Limited Port Colborne Refinery	Port Colborne	ON	0.562	0.000	0.616	30.510	31.688
1696	New Brunswick Power	Coleson Cove Generating Station	Saint John	NB	4.990	0.000	0.054	24.880	29.924
3704	Imperial Oil	IOL Sarnia Refinery	Sarnia	ON	25.724	0.000	0.028	1.616	27.368
2284	TransAlta Utilities Corporation	Sundance Thermal Generating Plant	Duffield	AB	0.072	0.000	0.000	21.834	21.906
4316	North Atlantic Refining Ltd.	North Atlantic Refinery	Come by Chance	NF	17.276	0.000	0.000	0.000	17.276

Nitrate ion (in solution at a pH ≥ 6.0) CAS #: N/A Total # of Reports: 107 Total Releases (tonnes): 6 769.752

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
0770	Regional Municipality of Ottawa-Carleton	Robert O. Pickard Environmental Centre	Gloucester	ON	0.000	0.000	659.000	0.000	659.000
2238	City of Toronto	Humber Treatment Plant	Toronto	ON	0.000	0.000	477.000	0.000	477.000
2240	City of Toronto	Ashbridges Bay (formerly Main) Sewage Treatment Plant	Toronto	ON	0.000	0.000	477.000	0.000	477.000
2749	City of Medicine Hat	Wastewater Treatment Plant	Medicine Hat	AB	0.000	0.000	417.740	22.510	440.250
3953	Aciers Atlas Inc.	Aciers inoxydables Atlas	Tracy	QC	0.000	0.000	412.000	0.000	412.000
4743	City of London	Greenway Pollution Control Centre	London	ON	0.000	0.000	390.390	0.000	390.390
2377	Western Pulp Limited Partnership	Port Alice Cellulose Operation	Port Alice	BC	0.000	0.000	378.000	0.000	378.000
4435	City of Toronto	Highland Creek Treatment Plant	Toronto	ON	0.000	0.000	283.000	0.000	283.000
3197	Williams Operating Corporation	Williams Mine	Marathon	ON	0.000	0.000	265.000	0.000	265.000
2134	Agrium Products Inc.	Redwater Fertilizer Operations	Redwater/Municipal District of Sturgeon	AB	18.740	180.810	58.030	4.380	261.960

Nitric acid CAS #: 7697-37-2 Total # of Reports: 95 Total Releases (tonnes): 6.565

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
0225	Daymond Aluminum		Chatham	ON	2.180	0.000	0.000	0.000	2.180
2515	Simplot Canada Limited		Brandon	MB	0.000	0.000	0.000	1.100	1.100
3125	Viasystems Canada Inc.	Kirkland	Kirkland	QC	0.576	0.000	0.000	0.000	0.576
0322	Produits chimiques Expro Inc.		Salaberry-de-Valleyfield	QC	0.000	0.000	0.525	0.000	0.525

Nitrilotriacetic acid (and its salts) CAS #: 139-13-9 Total # of Reports: 10 Total Releases (tonnes): 2.037

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
3658	Lever Pond's - a Division of U L Canada Inc.	Plant 2	Toronto	ON	1.900	0.000	0.000	0.000	1.900

Phenol (and its salts) — CAS #: 108-95-2 — Total # of Reports: 79 — Total Releases (tonnes): 318.538

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
4378	Formica Canada Inc.		Saint-Jean-sur-Richelieu	QC	81.900	0.000	0.000	0.000	81.900
3201	3M Canada Company (Perth)	Perth, Ontario	Perth	ON	21.466	0.000	0.000	0.000	21.466
5687	Roxul, Inc.	Milton Plant	Milton	ON	21.400	0.000	0.000	0.000	21.400
3013	Norampac Inc.	Red Rock Division	Red Rock	ON	19.600	0.000	0.020	0.000	19.620
0930	Bowater Pulp and Paper Canada Inc.	Thunder Bay Operations	Thunder Bay	ON	17.030	0.000	0.030	0.000	17.060
5128	Canadian Forest Products Ltd.	Panel and Fibre Division	New Westminster	BC	16.200	0.000	0.000	0.000	16.200
0723	Pacifica Papers Inc.	Pacifica Papers, Powell River	Powell River	BC	15.630	0.000	0.020	0.000	15.650
3171	Eurocan Pulp and Paper Co. - A Division of West Fraser Mills	Eurocan Pulp & Paper	Kitimat	BC	0.000	0.000	13.910	0.000	13.910
1593	Pacifica Papers	Alberni Specialties	Port Alberni	BC	13.090	0.000	0.003	0.000	13.093
1882	Fibrex Insulations Inc.	Sarnia Plant	Sarnia	ON	12.506	0.000	0.000	0.000	12.506

Phosphoric acid — CAS #: 7664-38-2 — Total # of Reports: 230 — Total Releases (tonnes): 15.697

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
4533	Con Mar Manufacturing		Niagara Falls	ON	8.470	0.000	0.000	0.000	8.470
3127	Produits Shell Canada Limitée	Raffinerie de Montréal-Est	Montréal	QC	2.400	0.000	0.000	0.000	2.400
3121	A.G. Simpson Co. Ltd.	A.G. Simpson Co. Ltd. - Cambridge	Cambridge	ON	2.046	0.000	0.000	0.000	2.046

Phosphorus (yellow or white) — CAS #: 7723-14-0 — Total # of Reports: 20 — Total Releases (tonnes): 12.640

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
2537	Safety-Kleen Ltd.	Lambton Facility	Corunna	ON	1.232	0.000	0.000	11.200	12.432

Phthalic anhydride — CAS #: 85-44-9 — Total # of Reports: 16 — Total Releases (tonnes): 349.735

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
2537	Safety-Kleen Ltd.	Lambton Facility	Corunna	ON	0.000	0.000	0.000	348.300	348.300

Nitrate ion (in solution at a pH ≥ 6.0) **CAS #: N/A** **Total # of Reports: 107** **Total Releases (tonnes): 6 769.752**

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
0770	Regional Municipality of Ottawa-Carleton	Robert O. Pickard Environmental Centre	Gloucester	ON	0.000	0.000	659.000	0.000	659.000
2238	City of Toronto	Humber Treatment Plant	Toronto	ON	0.000	0.000	477.000	0.000	477.000
2240	City of Toronto	Ashbridges Bay (formerly Main) Sewage Treatment Plant	Toronto	ON	0.000	0.000	477.000	0.000	477.000
2749	City of Medicine Hat	Wastewater Treatment Plant	Medicine Hat	AB	0.000	0.000	417.740	22.510	440.250
3953	Aciers Atlas Inc.	Aciers inoxydables Atlas	Tracy	QC	0.000	0.000	412.000	0.000	412.000
4743	City of London	Greenway Pollution Control Centre	London	ON	0.000	0.000	390.390	0.000	390.390
2377	Western Pulp Limited Partnership	Port Alice Cellulose Operation	Port Alice	BC	0.000	0.000	378.000	0.000	378.000
4435	City of Toronto	Highland Creek Treatment Plant	Toronto	ON	0.000	0.000	283.000	0.000	283.000
3197	Williams Operating Corporation	Williams Mine	Marathon	ON	0.000	0.000	265.000	0.000	265.000
2134	Agrium Products Inc.	Redwater Fertilizer Operations	Redwater/Municipal District of Sturgeon	AB	18.740	180.810	58.030	4.380	261.960

Nitric acid **CAS #: 7697-37-2** **Total # of Reports: 95** **Total Releases (tonnes): 6.565**

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
0225	Daymond Aluminum		Chatham	ON	2.180	0.000	0.000	0.000	2.180
2515	Simplot Canada Limited		Brandon	MB	0.000	0.000	0.000	1.100	1.100
3125	Viasystems Canada Inc.	Kirkland	Kirkland	QC	0.576	0.000	0.000	0.000	0.576
0322	Produits chimiques Expro Inc.		Salaberry-de-Valleyfield	QC	0.000	0.000	0.525	0.000	0.525

Nitrilotriacetic acid (and its salts) **CAS #: 139-13-9** **Total # of Reports: 10** **Total Releases (tonnes): 2.037**

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
3658	Lever Pond's - a Division of U L Canada Inc.	Plant 2	Toronto	ON	1.900	0.000	0.000	0.000	1.900

Phenol (and its salts) — CAS #: 108-95-2 — Total # of Reports: 79 — Total Releases (tonnes): 318.538

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
4378	Formica Canada Inc.		Saint-Jean-sur-Richelieu	QC	81.900	0.000	0.000	0.000	81.900
3201	3M Canada Company (Perth)	Perth, Ontario	Perth	ON	21.466	0.000	0.000	0.000	21.466
5687	Roxul, Inc.	Milton Plant	Milton	ON	21.400	0.000	0.000	0.000	21.400
3013	Norampac Inc.	Red Rock Division	Red Rock	ON	19.600	0.000	0.020	0.000	19.620
0930	Bowater Pulp and Paper Canada Inc.	Thunder Bay Operations	Thunder Bay	ON	17.030	0.000	0.030	0.000	17.060
5128	Canadian Forest Products Ltd.	Panel and Fibre Division	New Westminster	BC	16.200	0.000	0.000	0.000	16.200
0723	Pacifica Papers Inc.	Pacifica Papers, Powell River	Powell River	BC	15.630	0.000	0.020	0.000	15.650
3171	Eurocan Pulp and Paper Co. - A Division of West Fraser Mills	Eurocan Pulp & Paper	Kitimat	BC	0.000	0.000	13.910	0.000	13.910
1593	Pacifica Papers	Alberni Specialties	Port Alberni	BC	13.090	0.000	0.003	0.000	13.093
1882	Fibrex Insulations Inc.	Sarnia Plant	Sarnia	ON	12.506	0.000	0.000	0.000	12.506

Phosphoric acid — CAS #: 7664-38-2 — Total # of Reports: 230 — Total Releases (tonnes): 15.697

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
4533	Con Mar Manufacturing		Niagara Falls	ON	8.470	0.000	0.000	0.000	8.470
3127	Produits Shell Canada Limitée	Raffinerie de Montréal-Est	Montréal	QC	2.400	0.000	0.000	0.000	2.400
3121	A.G. Simpson Co. Ltd.	A.G. Simpson Co. Ltd. - Cambridge	Cambridge	ON	2.046	0.000	0.000	0.000	2.046

Phosphorus (yellow or white) — CAS #: 7723-14-0 — Total # of Reports: 20 — Total Releases (tonnes): 12.640

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
2537	Safety-Kleen Ltd.	Lambton Facility	Corunna	ON	1.232	0.000	0.000	11.200	12.432

Phthalic anhydride — CAS #: 85-44-9 — Total # of Reports: 16 — Total Releases (tonnes): 349.735

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
2537	Safety-Kleen Ltd.	Lambton Facility	Corunna	ON	0.000	0.000	0.000	348.300	348.300

Propylene — CAS #: 115-07-1 — Total # of Reports: 38 — Total Releases (tonnes): 961.959

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
3634	Pétromont, société en commandite	Usine de Varennes	Varennes	QC	145.733	0.000	0.000	0.000	145.733
3901	Petro-Canada	Oakville Refinery	Oakville	ON	137.600	0.000	0.000	0.000	137.600
4763	Montell Canada Inc.	Sarnia Plant	Corunna	ON	108.400	0.000	0.000	0.000	108.400
2274	Syncrude Canada Ltd.	Mildred Lake Plant Site	Fort McMurray	AB	86.088	0.000	0.000	0.000	86.088
0391	Montell Canada Inc.	Usine de Varennes	Varennes	QC	55.110	0.000	0.000	0.000	55.110
2125	Shell Chemicals Canada Ltd.	Sarnia IPA Plant	Corunna	ON	40.500	0.000	0.000	0.000	40.500
4101	Irving Oil Limited	Refining Division	Saint John	NB	40.395	0.000	0.000	0.000	40.395
1776	NOVA Chemicals (Canada) Ltd.	NOVA Chemicals (Canada) Ltd. - Corunna Site	Corunna	ON	37.900	0.000	0.000	0.000	37.900
3928	Ultramar Ltée	Raffinerie Saint-Romuald	Saint-Romuald	QC	36.714	0.000	0.000	0.000	36.714
3704	Imperial Oil	IOL Sarnia Refinery	Sarnia	ON	33.522	0.000	0.000	0.000	33.522

Propylene oxide — CAS #: 75-56-9 — Total # of Reports: 3 — Total Releases (tonnes): 10.403

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
3146	Dow Chemical Canada Inc.	Dow Chemical Canada Inc. - Sarnia	Sarnia	ON	6.640	0.000	0.000	0.000	6.640
0800	Rhodia Canada Inc.	Cooksville Plant	Mississauga	ON	3.453	0.000	0.000	0.000	3.453

Selenium (and its compounds) — CAS #: N/A — Total # of Reports: 13 — Total Releases (tonnes): 21.317

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
1861	Ontario Power Generation Inc.	Nanticoke Generating Station	Nanticoke	ON	4.967	0.000	0.087	7.002	12.056
3623	Noranda Inc.	Fonderie Horne	Rouyn-Noranda	QC	3.690	0.000	0.560	0.000	4.250
2815	Falconbridge Limited - Kidd Metallurgical Div.	Kidd Metallurgical Site	District of Cochrane	ON	0.525	0.000	2.853	0.000	3.378
1469	Inco Limited	Copper Refinery	Copper Cliff	ON	1.090	0.000	0.000	0.000	1.090

Silver (and its compounds)	CAS #: N/A	Total # of Reports: 18					Total Releases (tonnes): 2.151
NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
3623	Noranda Inc.	Fonderie Horne	Rouyn-Noranda	QC	1.090	0.000	0.117	0.000	1.207

Styrene	CAS #: 100-42-5	Total # of Reports: 98					Total Releases (tonnes): 2 097.917
NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
4916	MAAX Inc.	Division Fibre de Verre Moderne - Usine 5	Tring-Jonction	QC	242.373	0.000	0.000	0.000	242.373
4323	MAAX Inc.	Division Acrylica	Sainte-Marie	QC	156.432	0.000	0.000	0.000	156.432
5123	Maax Westco		Armstrong	BC	146.935	0.000	0.000	0.000	146.935
5444	Camoplast Inc.	Div. Acton Vale	Acton Vale	QC	123.000	0.000	0.000	0.000	123.000
2561	Camoplast Inc.	Div. Roski 1	Roxton Falls	QC	117.000	0.000	0.000	0.000	117.000
5333	Raider Industries	Plant 2 - Cap Division	Moose Jaw	SK	102.600	0.000	0.000	0.000	102.600
4996	ADS Groupe Composites Inc.	Beauce Composites	Ste-Clotilde	QC	99.728	0.000	0.000	0.000	99.728
3573	Mirolin Industries Corporation	Mirolin	Toronto	ON	89.250	0.000	0.000	0.000	89.250
5136	Kohler Ltd.	Armstrong Plant	Armstrong	BC	79.350	0.000	0.000	0.000	79.350
4405	ADS Groupe Composites Inc.	Fibrex Composites	Terrebonne	QC	70.020	0.000	0.000	0.000	70.020

Sulphuric acid	CAS #: 7664-93-9	Total # of Reports: 475					Total Releases (tonnes): 9 456.821
NPRI ID	Company Name	Province/ Facility Name	City	Under-Territory	Air	ground	Total Water	Land	Releases
0444	Inco Limited	Copper Cliff Smelter Complex	Copper Cliff	ON	1 721.870	0.000	0.000	0.000	1 721.870
0930	Bowater Pulp and Paper Canada Inc.	Thunder Bay Operations	Thunder Bay	ON	1 177.240	0.000	0.000	0.000	1 177.240
2274	Syncrude Canada Ltd.	Mildred Lake Plant Site	Fort McMurray	AB	829.273	0.000	0.000	0.000	829.273
1696	New Brunswick Power	Coleson Cove Generating Station	Saint John	NB	686.700	0.000	0.000	0.000	686.700
1712	New Brunswick Power	Dalhousie Generation Station	Dalhousie	NB	548.500	0.000	0.000	0.000	548.500
1698	New Brunswick Power	Belledune Thermal Generating Station	Belledune	NB	464.300	0.000	0.000	0.000	464.300
3992	Nova Scotia Power Inc.	Lingan Generating Station	New Waterford	NS	369.000	0.000	0.000	0.000	369.000
1861	Ontario Power Generation Inc.	Nanticoke Generating Station	Nanticoke	ON	358.680	0.000	0.000	0.000	358.680
2230	Suncor Energy Inc.	Suncor Energy Inc. Oil Sands	Fort McMurray	AB	338.240	0.000	0.000	0.000	338.240
1809	Ontario Power Generation Inc.	Lambton Generating Station	Courtright	ON	317.106	0.000	0.000	0.000	317.106

Propylene — CAS #: 115-07-1 — Total # of Reports: 38 — Total Releases (tonnes): 961.959

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
3634	Pétromont, société en commandite	Usine de Varennes	Varennes	QC	145.733	0.000	0.000	0.000	145.733
3901	Petro-Canada	Oakville Refinery	Oakville	ON	137.600	0.000	0.000	0.000	137.600
4763	Montell Canada Inc.	Sarnia Plant	Corunna	ON	108.400	0.000	0.000	0.000	108.400
2274	Syncrude Canada Ltd.	Mildred Lake Plant Site	Fort McMurray	AB	86.088	0.000	0.000	0.000	86.088
0391	Montell Canada Inc.	Usine de Varennes	Varennes	QC	55.110	0.000	0.000	0.000	55.110
2125	Shell Chemicals Canada Ltd.	Sarnia IPA Plant	Corunna	ON	40.500	0.000	0.000	0.000	40.500
4101	Irving Oil Limited	Refining Division	Saint John	NB	40.395	0.000	0.000	0.000	40.395
1776	NOVA Chemicals (Canada) Ltd.	NOVA Chemicals (Canada) Ltd. - Corunna Site	Corunna	ON	37.900	0.000	0.000	0.000	37.900
3928	Ultramar Ltée	Raffinerie Saint-Romuald	Saint-Romuald	QC	36.714	0.000	0.000	0.000	36.714
3704	Imperial Oil	IOL Sarnia Refinery	Sarnia	ON	33.522	0.000	0.000	0.000	33.522

Propylene oxide — CAS #: 75-56-9 — Total # of Reports: 3 — Total Releases (tonnes): 10.403

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
3146	Dow Chemical Canada Inc.	Dow Chemical Canada Inc. - Sarnia	Sarnia	ON	6.640	0.000	0.000	0.000	6.640
0800	Rhodia Canada Inc.	Cooksville Plant	Mississauga	ON	3.453	0.000	0.000	0.000	3.453

Selenium (and its compounds) — CAS #: N/A — Total # of Reports: 13 — Total Releases (tonnes): 21.317

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
1861	Ontario Power Generation Inc.	Nanticoke Generating Station	Nanticoke	ON	4.967	0.000	0.087	7.002	12.056
3623	Noranda Inc.	Fonderie Horne	Rouyn-Noranda	QC	3.690	0.000	0.560	0.000	4.250
2815	Falconbridge Limited - Kidd Metallurgical Div.	Kidd Metallurgical Site	District of Cochrane	ON	0.525	0.000	2.853	0.000	3.378
1469	Inco Limited	Copper Refinery	Copper Cliff	ON	1.090	0.000	0.000	0.000	1.090

Silver (and its compounds)	CAS #: N/A	Total # of Reports: 18					Total Releases (tonnes): 2.151
NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
3623	Noranda Inc.	Fonderie Horne	Rouyn-Noranda	QC	1.090	0.000	0.117	0.000	1.207

Styrene	CAS #: 100-42-5	Total # of Reports: 98					Total Releases (tonnes): 2 097.917
NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
4916	MAAX Inc.	Division Fibre de Verre Moderne - Usine 5	Tring-Jonction	QC	242.373	0.000	0.000	0.000	242.373
4323	MAAX Inc.	Division Acrylica	Sainte-Marie	QC	156.432	0.000	0.000	0.000	156.432
5123	Maax Westco		Armstrong	BC	146.935	0.000	0.000	0.000	146.935
5444	Camoplast Inc.	Div. Acton Vale	Acton Vale	QC	123.000	0.000	0.000	0.000	123.000
2561	Camoplast Inc.	Div. Roski 1	Roxton Falls	QC	117.000	0.000	0.000	0.000	117.000
5333	Raider Industries	Plant 2 - Cap Division	Moose Jaw	SK	102.600	0.000	0.000	0.000	102.600
4996	ADS Groupe Composites Inc.	Beauce Composites	Ste-Clotilde	QC	99.728	0.000	0.000	0.000	99.728
3573	Mirolin Industries Corporation	Mirolin	Toronto	ON	89.250	0.000	0.000	0.000	89.250
5136	Kohler Ltd.	Armstrong Plant	Armstrong	BC	79.350	0.000	0.000	0.000	79.350
4405	ADS Groupe Composites Inc.	Fibrex Composites	Terrebonne	QC	70.020	0.000	0.000	0.000	70.020

Sulphuric acid	CAS #: 7664-93-9	Total # of Reports: 475					Total Releases (tonnes): 9 456.821
NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
0444	Inco Limited	Copper Cliff Smelter Complex	Copper Cliff	ON	1 721.870	0.000	0.000	0.000	1 721.870
0930	Bowater Pulp and Paper Canada Inc.	Thunder Bay Operations	Thunder Bay	ON	1 177.240	0.000	0.000	0.000	1 177.240
2274	Syncrude Canada Ltd.	Mildred Lake Plant Site	Fort McMurray	AB	829.273	0.000	0.000	0.000	829.273
1696	New Brunswick Power	Coleson Cove Generating Station	Saint John	NB	686.700	0.000	0.000	0.000	686.700
1712	New Brunswick Power	Dalhousie Generation Station	Dalhousie	NB	548.500	0.000	0.000	0.000	548.500
1698	New Brunswick Power	Belledune Thermal Generating Station	Belledune	NB	464.300	0.000	0.000	0.000	464.300
3992	Nova Scotia Power Inc.	Lingan Generating Station	New Waterford	NS	369.000	0.000	0.000	0.000	369.000
1851	Ontario Power Generation Inc.	Nanticoke Generating Station	Nanticoke	ON	358.680	0.000	0.000	0.000	358.680
2230	Suncor Energy Inc.	Suncor Energy Inc. Oil Sands	Fort McMurray	AB	338.240	0.000	0.000	0.000	338.240
1809	Ontario Power Generation Inc.	Lambton Generating Station	Courtright	ON	317.106	0.000	0.000	0.000	317.106

Tetrachloroethylene — CAS #: 127-18-4 — Total # of Reports: 45 — Total Releases (tonnes): 125.902

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
4864	Uniglove Services Ltd.		Hamilton	ON	63.020	0.000	0.000	0.000	63.020
5848	Walbar Engine Components		Mississauga	ON	12.000	0.000	0.000	0.000	12.000
4921	Hafner Inc.	Usine de transformation	Granby	QC	10.916	0.000	0.000	0.437	11.353
2852	Orica Canada Inc.	Orica Canada Inc.	Brownsburg	QC	10.300	0.000	0.000	0.000	10.300
4718	Industrial Glove & Garment Ltd.	Cleaning Plant	Whitby	ON	8.200	0.000	0.000	0.000	8.200
4899	Deluxe Toronto		Toronto	ON	5.670	0.000	0.000	0.000	5.670
1447	IBM Canada Ltée	IBM Canada Ltée, Bromont	Bromont	QC	4.860	0.000	0.000	0.000	4.860
4471	Aries Flexographics Ltd.		Mississauga	ON	3.930	0.000	0.000	0.000	3.930
5627	Maple Roll Leaf	Maple Roll Leaf - Windsor	Windsor	ON	2.925	0.000	0.000	0.000	2.925
1553	KG Packaging		Concord	ON	1.787	0.000	0.000	0.000	1.787

Titanium tetrachloride — CAS #: 7550-45-0 — Total # of Reports: 4 — Total Releases (tonnes): 0.990

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
5314	Renbec Industries Ltd.		Calgary	AB	0.950	0.000	0.000	0.000	0.950

Toluene — CAS #: 108-88-3 — Total # of Reports: 367 — Total Releases (tonnes): 7 289.478

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
2263	Imperial Home Decor Group ULC	IHDG Brampton	Brampton	ON	563.000	0.000	0.000	0.000	563.000
3893	General Motors of Canada Limited	Oshawa Car Assembly Plant	Oshawa	ON	466.098	0.000	0.000	0.000	466.098
2656	Ventra Plastics	Peterborough Facility	Peterborough	ON	354.297	0.000	0.000	0.000	354.297
3447	Imprimeries Québecor Inc.	Québecor Printing PE&E	Etobicoke	ON	278.451	0.000	0.000	0.000	278.451
4399	Canadian Technical Tape	Montreal Plant	Saint-Laurent	QC	230.500	0.000	0.000	0.000	230.500
0741	Morbern Inc.		Cornwall	ON	182.750	0.000	0.000	0.000	182.750
4734	Consoltex Inc.		Alexandria	ON	182.694	0.000	0.000	0.000	182.694
3475	Canadian General-Tower Ltd.		Cambridge	ON	181.000	0.000	0.000	0.000	181.000
3989	Jacobs & Thompson Inc.		Weston	ON	154.926	0.000	0.000	0.000	154.926
2274	Syncrude Canada Ltd.	Mildred Lake Plant Site	Fort McMurray	AB	154.473	0.000	0.000	0.000	154.473

Toluenediisocyanate (mixed isomers) CAS #: 26471-62-5 Total # of Reports: 27 Total Releases (tonnes): 1.649

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
5466	Foamex Canada Inc.	Montréal	Montréal	QC	0.500	0.000	0.000	0.000	0.500

1,1,2-Trichloroethane CAS #: 79-00-5 Total # of Reports: 5 Total Releases (tonnes): 1.817

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
0279	Domtar Inc.	Usine Norkraft, Lebel-sur-Quévillon	Lebel-sur-Quévillon	QC	0.700	0.000	0.000	0.000	0.700
5793	Stanley Manufacturing Company Inc.	Stanley Plant	Toronto	ON	0.500	0.000	0.000	0.000	0.500

Trichloroethylene CAS #: 79-01-6 Total # of Reports: 48 Total Releases (tonnes): 690.309

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
4524	Sandvik Steel Canada		Arnprior	ON	155.510	0.000	0.000	0.000	155.510
2396	Wolverine Tube (Canada) Inc.	Wolverine Tube (Canada) Inc. London Operations	London	ON	71.337	0.000	0.000	0.000	71.337
0818	CANUSA, a Division of Shaw Industries Ltd.	Huntsville	Huntsville	ON	53.859	0.000	0.000	0.000	53.859
1189	Bombardier Aerospace	Downsview Plant	Downsview	ON	51.500	0.000	0.000	0.000	51.500
5733	Indalco Alloys Inc.		Mississauga	ON	41.354	0.000	0.000	0.000	41.354
0123	Associated Tube Industries	A.T.I.	Markham	ON	35.400	0.000	0.000	0.000	35.400
3845	Blount Canada Limited		Guelph	ON	23.652	0.000	0.000	0.000	23.652
0135	Bonar Packaging	Plastics Division	Burlington	ON	23.100	0.000	0.000	0.000	23.100
4702	ABB	ABB Coiltech	Smiths Falls	ON	21.110	0.000	0.000	0.000	21.110
3143	Derlan Aerospace Canada	Cambridge Facility	Cambridge	ON	20.000	0.000	0.000	0.000	20.000

Tetrachloroethylene — CAS #: 127-18-4 — Total # of Reports: 45 — Total Releases (tonnes): 125.902

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
4864	Uniglove Services Ltd.		Hamilton	ON	63.020	0.000	0.000	0.000	63.020
5848	Walbar Engine Components		Mississauga	ON	12.000	0.000	0.000	0.000	12.000
4921	Hafner Inc.	Usine de transformation	Granby	QC	10.916	0.000	0.000	0.437	11.353
2852	Orica Canada Inc.	Orica Canada Inc.	Brownsburg	QC	10.300	0.000	0.000	0.000	10.300
4718	Industrial Glove & Garment Ltd.	Cleaning Plant	Whitby	ON	8.200	0.000	0.000	0.000	8.200
4899	Deluxe Toronto		Toronto	ON	5.670	0.000	0.000	0.000	5.670
1447	IBM Canada Ltée	IBM Canada Ltée, Bromont	Bromont	QC	4.860	0.000	0.000	0.000	4.860
4471	Aries Flexographics Ltd.		Mississauga	ON	3.930	0.000	0.000	0.000	3.930
5627	Maple Roll Leaf	Maple Roll Leaf - Windsor	Windsor	ON	2.925	0.000	0.000	0.000	2.925
1553	KG Packaging		Concord	ON	1.787	0.000	0.000	0.000	1.787

Titanium tetrachloride — CAS #: 7550-45-0 — Total # of Reports: 4 — Total Releases (tonnes): 0.990

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
5314	Renbec Industries Ltd.		Calgary	AB	0.950	0.000	0.000	0.000	0.950

Toluene — CAS #: 108-88-3 — Total # of Reports: 367 — Total Releases (tonnes): 7 289.478

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
2263	Imperial Home Decor Group ULC	IHDG Brampton	Brampton	ON	563.000	0.000	0.000	0.000	563.000
3693	General Motors of Canada Limited	Oshawa Car Assembly Plant	Oshawa	ON	466.098	0.000	0.000	0.000	466.098
2656	Ventra Plastics	Peterborough Facility	Peterborough	ON	354.297	0.000	0.000	0.000	354.297
3447	Imprimeries Québecor Inc.	Québecor Printing PE&E	Etobicoke	ON	278.451	0.000	0.000	0.000	278.451
4399	Canadian Technical Tape	Montreal Plant	Saint-Laurent	QC	230.500	0.000	0.000	0.000	230.500
0741	Morbern Inc.		Cornwall	ON	182.750	0.000	0.000	0.000	182.750
4734	Consoltex Inc.		Alexandria	ON	182.694	0.000	0.000	0.000	182.694
3475	Canadian General-Tower Ltd.		Cambridge	ON	181.000	0.000	0.000	0.000	181.000
3989	Jacobs & Thompson Inc.		Weston	ON	154.926	0.000	0.000	0.000	154.926
2274	Syncrude Canada Ltd.	Mildred Lake Plant Site	Fort McMurray	AB	154.473	0.000	0.000	0.000	154.473

Toluenediisocyanate (mixed isomers) CAS #: 26471-62-5 Total # of Reports: 27 Total Releases (tonnes): 1.649

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
5466	Foamex Canada Inc.	Montréal	Montréal	QC	0.500	0.000	0.000	0.000	0.500

1,1,2-Trichloroethane CAS #: 79-00-5 Total # of Reports: 5 Total Releases (tonnes): 1.817

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
0279	Domtar Inc.	Usine Norkraft, Lebel-sur-Quévillon	Lebel-sur-Quévillon	QC	0.700	0.000	0.000	0.000	0.700
5793	Stanley Manufacturing Company Inc.	Stanley Plant	Toronto	ON	0.500	0.000	0.000	0.000	0.500

Trichloroethylene CAS #: 79-01-6 Total # of Reports: 48 Total Releases (tonnes): 690.309

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
4524	Sandvik Steel Canada		Arnprior	ON	155.510	0.000	0.000	0.000	155.510
2396	Wolverine Tube (Canada) Inc.	Wolverine Tube (Canada) Inc. London Operations	London	ON	71.337	0.000	0.000	0.000	71.337
0818	CANUSA, a Division of Shaw Industries Ltd.	Huntsville	Huntsville	ON	53.859	0.000	0.000	0.000	53.859
1189	Bombardier Aerospace	Downsview Plant	Downsview	ON	51.500	0.000	0.000	0.000	51.500
5733	Indalco Alloys Inc.		Mississauga	ON	41.354	0.000	0.000	0.000	41.354
0123	Associated Tube Industries	A.T.I.	Markham	ON	35.400	0.000	0.000	0.000	35.400
3845	Blount Canada Limited		Guelph	ON	23.652	0.000	0.000	0.000	23.652
0135	Bonar Packaging	Plastics Division	Burlington	ON	23.100	0.000	0.000	0.000	23.100
4702	ABB	ABB Coiltech	Smiths Falls	ON	21.110	0.000	0.000	0.000	21.110
3143	Derlan Aerospace Canada	Cambridge Facility	Cambridge	ON	20.000	0.000	0.000	0.000	20.000

1,2,4-Trimethylbenzene — CAS #: 95-63-6 — Total # of Reports: 119 — Total Releases (tonnes): 635.564

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
3419	Ford Motor Company	Oakville Assembly Plant	Oakville	ON	120.680	0.000	0.000	0.000	120.680
3893	General Motors of Canada Limited	Oshawa Car Assembly Plant	Oshawa	ON	67.184	0.000	0.000	0.000	67.184
2274	Syncrude Canada Ltd.	Mildred Lake Plant Site	Fort McMurray	AB	59.135	0.000	0.000	0.000	59.135
4907	Budd Canada Inc.	Budd Canada Kitchener	Kitchener	ON	54.981	0.000	0.000	0.000	54.981
3883	Ford Motor Company	St. Thomas Assembly Plant	St. Thomas	ON	32.393	0.000	0.000	0.000	32.393
0733	Paintplas Inc.	650 Finley Ave.	Ajax	ON	25.200	0.000	0.000	0.000	25.200
3213	Crown Cork & Seal Canada	Crown Cork & Seal Canada - Plt.233	Concord	ON	24.587	0.000	0.000	0.000	24.587
2204	Steelcase Inc.	Steelcase Canada Ltd.	Markham	ON	19.635	0.000	0.000	0.000	19.635
1492	Elf Atochem Canada	Usine de production de peroxyde d'hydrogène	Bécancour	QC	18.969	0.000	0.010	0.000	18.979
5703	Weatherstrong Building Products		Smiths Falls	ON	18.675	0.000	0.000	0.000	18.675

Vanadium (fume or dust) — CAS #: 7440-62-2 — Total # of Reports: 17 — Total Releases (tonnes): 107.420

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
3704	Imperial Oil	IOL Sarnia Refinery	Sarnia	ON	70.040	0.000	0.000	1.889	71.929
3962	Shell Canada Products Limited	Sarnia Manufacturing Centre	Corunna	ON	14.381	0.000	0.000	0.280	14.661
3897	Petro-Canada	Raffinerie de Montréal	Montréal	QC	9.522	0.000	0.000	0.000	9.522
3127	Produits Shell Canada Limitée	Raffinerie de Montréal-Est	Montréal	QC	4.830	0.000	0.000	0.000	4.830
1207	DuPont Canada Inc.	Maitland Site	Maitland	ON	2.058	0.000	0.000	0.000	2.058
3901	Petro-Canada	Oakville Refinery	Oakville	ON	1.711	0.000	0.000	0.011	1.722
2230	Suncor Energy Inc.	Suncor Energy Inc. Oil Sands	Fort McMurray	AB	1.540	0.000	0.000	0.000	1.540

Vinyl acetate — CAS #: 108-05-4 — Total # of Reports: 10 — Total Releases (tonnes): 522.886

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
1162	Celanese Canada Inc.	Edmonton Facility	Edmonton	AB	49.200	320.000	0.000	0.000	369.200
0126	AT Plastics Inc.	Edmonton Site	Edmonton	AB	135.554	0.000	0.000	0.261	135.815
3586	Nacan Products Limited	Produits Nacan Limitée	Boucherville	QC	14.053	0.000	0.000	0.000	14.053
1165	Celanese Canada Inc.	Weston Terminal	North York	ON	1.500	0.000	0.000	0.000	1.500
3114	Benjamin Moore & Co. Limited	Montreal Plant	Montréal	QC	0.971	0.000	0.000	0.000	0.971
0374	Halltech Inc.		Scarborough	ON	0.823	0.000	0.000	0.000	0.823

Vinyl chloride — CAS #: 75-01-4 — Total # of Reports: 8 — Total Releases (tonnes): 19.137

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
0355	Oxy Vinyls Canada Inc.	Scotford Plant	Fort Saskatchewan	AB	5.900	0.000	0.010	0.000	5.910
5728	Royal Polymers Limited	Sarnia PVC Plant	Sarnia	ON	5.204	0.000	0.000	0.000	5.204
5762	Oxy Vinyls Canada Inc.	Niagara PVC Plant	Thorold	ON	4.982	0.000	0.047	0.000	5.029
0280	Dow Chemical Canada Inc.	Western Canada Operations	Fort Saskatchewan	AB	2.552	0.001	0.000	0.000	2.553

Vinylidene chloride — CAS #: 75-35-4 — Total # of Reports: 1 — Total Releases (tonnes): 1.325

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
3152	Oxford Automotive	Oxford Suspension Ltd. Wallaceburg	Wallaceburg	ON	1.325	0.000	0.000	0.000	1.325

1,2,4-Trimethylbenzene — CAS #: 95-63-6 — Total # of Reports: 119 — Total Releases (tonnes): 635.564

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
3419	Ford Motor Company	Oakville Assembly Plant	Oakville	ON	120.680	0.000	0.000	0.000	120.680
3883	General Motors of Canada Limited	Oshawa Car Assembly Plant	Oshawa	ON	67.184	0.000	0.000	0.000	67.184
2274	Syncrude Canada Ltd.	Mildred Lake Plant Site	Fort McMurray	AB	59.135	0.000	0.000	0.000	59.135
4907	Budd Canada Inc.	Budd Canada Kitchener	Kitchener	ON	54.981	0.000	0.000	0.000	54.981
3883	Ford Motor Company	St. Thomas Assembly Plant	St. Thomas	ON	32.393	0.000	0.000	0.000	32.393
0733	Paintplas Inc.	650 Finley Ave.	Ajax	ON	25.200	0.000	0.000	0.000	25.200
3213	Crown Cork & Seal Canada	Crown Cork & Seal Canada - Plt.233	Concord	ON	24.587	0.000	0.000	0.000	24.587
2204	Steelcase Inc.	Steelcase Canada Ltd.	Markham	ON	19.635	0.000	0.000	0.000	19.635
1492	Elf Atochem Canada	Usine de production de peroxyde d'hydrogène	Bécancour	QC	18.969	0.000	0.010	0.000	18.979
5703	Weatherstrong Building Products		Smiths Falls	ON	18.675	0.000	0.000	0.000	18.675

Vanadium (fume or dust) — CAS #: 7440-62-2 — Total # of Reports: 17 — Total Releases (tonnes): 107.420

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
3704	Imperial Oil	IOL Sarnia Refinery	Sarnia	ON	70.040	0.000	0.000	1.889	71.929
3962	Shell Canada Products Limited	Sarnia Manufacturing Centre	Corunna	ON	14.381	0.000	0.000	0.280	14.661
3897	Petro-Canada	Raffinerie de Montréal	Montréal	QC	9.522	0.000	0.000	0.000	9.522
3127	Produits Shell Canada Limitée	Raffinerie de Montréal-Est	Montréal	QC	4.830	0.000	0.000	0.000	4.830
1207	DuPont Canada Inc.	Maitland Site	Maitland	ON	2.058	0.000	0.000	0.000	2.058
3901	Petro-Canada	Oakville Refinery	Oakville	ON	1.711	0.000	0.000	0.011	1.722
2230	Suncor Energy Inc.	Suncor Energy Inc. Oil Sands	Fort McMurray	AB	1.540	0.000	0.000	0.000	1.540

Vinyl acetate — CAS #: 108-05-4 — Total # of Reports: 10 — Total Releases (tonnes): 522.886

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
1162	Celanese Canada Inc.	Edmonton Facility	Edmonton	AB	49.200	320.000	0.000	0.000	369.200
0126	AT Plastics Inc.	Edmonton Site	Edmonton	AB	135.554	0.000	0.000	0.261	135.815
3586	Nacan Products Limited	Produits Nacan Limitée	Boucherville	QC	14.053	0.000	0.000	0.000	14.053
1165	Celanese Canada Inc.	Weston Terminal	North York	ON	1.500	0.000	0.000	0.000	1.500
3114	Benjamin Moore & Co. Limited	Montreal Plant	Montréal	QC	0.971	0.000	0.000	0.000	0.971
0374	Halltech Inc.		Scarborough	ON	0.823	0.000	0.000	0.000	0.823

Vinyl chloride — CAS #: 75-01-4 — Total # of Reports: 8 — Total Releases (tonnes): 19.137

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
0355	Oxy Vinyls Canada Inc.	Scotford Plant	Fort Saskatchewan	AB	5.900	0.000	0.010	0.000	5.910
5728	Royal Polymers Limited	Sarnia PVC Plant	Sarnia	ON	5.204	0.000	0.000	0.000	5.204
5762	Oxy Vinyls Canada Inc.	Niagara PVC Plant	Thorold	ON	4.982	0.000	0.047	0.000	5.029
0280	Dow Chemical Canada Inc.	Western Canada Operations	Fort Saskatchewan	AB	2.552	0.001	0.000	0.000	2.553

Vinylidene chloride — CAS #: 75-35-4 — Total # of Reports: 1 — Total Releases (tonnes): 1.325

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
3152	Oxford Automotive	Oxford Suspension Ltd. Wallaceburg	Wallaceburg	ON	1.325	0.000	0.000	0.000	1.325

Xylene (mixed isomers) — CAS #: 1330-20-7 — Total # of Reports: 363 — Total Releases (tonnes): 6 977.864

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
3893	General Motors of Canada Limited	Oshawa Car Assembly Plant	Oshawa	ON	519.769	0.000	0.000	0.000	519.769
1215	Ford Motor Company	Ontario Truck Plant	Oakville	ON	371.840	0.000	0.000	0.000	371.840
4796	Les Aciers Canam	Saint-Gédéon	Saint-Gédéon	QC	325.600	0.000	0.000	0.000	325.600
2274	Syncrude Canada Ltd.	Mildred Lake Plant Site	Fort McMurray	AB	315.467	0.000	0.000	0.000	315.467
0733	Paintplas Inc.	650 Finley Ave.	Ajax	ON	299.200	0.000	0.000	0.000	299.200
3883	Ford Motor Company	St. Thomas Assembly Plant	St. Thomas	ON	203.280	0.000	0.000	0.000	203.280
4785	Canam Steel Works	Mississauga	Mississauga	ON	190.000	0.000	0.000	0.000	190.000
3870	General Motors of Canada Limited	Oshawa Truck Assembly Centre	Oshawa	ON	170.870	0.000	0.000	0.000	170.870
3478	DaimlerChrysler AG	Pillette Road Truck Assembly Plant	Windsor	ON	158.025	0.000	0.000	0.000	158.025
2176	Standard Products (Canada) Limited	Rubber Plant 1	Stratford	ON	154.800	0.000	0.000	0.000	154.800

Zinc (and its compounds) — CAS #: N/A — Total # of Reports: 417 — Total Releases (tonnes): 16 669.503

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
2537	Safety-Kleen Ltd.	Lambton Facility	Corunna	ON	0.002	0.000	0.000	11 644.600	11 644.602
3649	Ispat Sidbec Inc.	Aciérie	Contrecoeur	QC	7.840	0.000	1.480	1 228.540	1 237.860
1651	Gerdau MRM Steel Inc.	MRM Steel	Selkirk	MB	5.624	0.000	1.120	926.851	933.595
3824	Co-Steel Lasco		Whitby	ON	8.065	0.000	0.079	817.349	825.493
3414	Hudson Bay Mining and Smelting Company Ltd.	HBM&S Co., Ltd. - Metallurgical Complex	Flin Flon	MB	244.556	0.000	3.043	0.000	247.599
1106	AltaSteel Ltd.	AltaSteel Ltd.	Edmonton	AB	4.044	0.000	0.017	232.138	236.199
4204	Sydney Steel Corporation	Sydney Steel Corp.	Sydney	NS	0.000	0.000	0.208	235.900	236.108
3802	Cominco Ltd.	Trail Operations	Trail	BC	147.400	0.000	40.100	0.000	187.500
5246	Gerdau MRM Steel Inc.	Mandak Metal Processors	Selkirk	MB	0.000	0.000	0.000	169.159	169.159
3655	Ispat Sidbec Inc.	Sidbec-Feruni (Ispat) Inc. Contrecoeur	Contrecoeur	QC	0.000	0.000	0.001	166.530	166.531

Xylene (mixed isomers) — CAS #: 1330-20-7 — Total # of Reports: 363 — Total Releases (tonnes): 6 977.864

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
3893	General Motors of Canada Limited	Oshawa Car Assembly Plant	Oshawa	ON	519.769	0.000	0.000	0.000	519.769
1215	Ford Motor Company	Ontario Truck Plant	Oakville	ON	371.840	0.000	0.000	0.000	371.840
4796	Les Aciers Canam	Saint-Gédéon	Saint-Gédéon	QC	325.600	0.000	0.000	0.000	325.600
2274	Syncrude Canada Ltd.	Mildred Lake Plant Site	Fort McMurray	AB	315.467	0.000	0.000	0.000	315.467
0733	Paintplas Inc.	650 Finley Ave.	Ajax	ON	299.200	0.000	0.000	0.000	299.200
3883	Ford Motor Company	St. Thomas Assembly Plant	St. Thomas	ON	203.280	0.000	0.000	0.000	203.280
4785	Canam Steel Works	Mississauga	Mississauga	ON	190.000	0.000	0.000	0.000	190.000
3870	General Motors of Canada Limited	Oshawa Truck Assembly Centre	Oshawa	ON	170.870	0.000	0.000	0.000	170.870
3478	DaimlerChrysler AG	Pillette Road Truck Assembly Plant	Windsor	ON	158.025	0.000	0.000	0.000	158.025
2176	Standard Products (Canada) Limited	Rubber Plant 1	Stratford	ON	154.800	0.000	0.000	0.000	154.800

Zinc (and its compounds) — CAS #: N/A — Total # of Reports: 417 — Total Releases (tonnes): 16 669.503

NPRI ID	Company Name	Facility Name	City	Province/ Territory	Air	Under-ground	Water	Land	Total Releases
2537	Safety-Kleen Ltd.	Lambton Facility	Corunna	ON	0.002	0.000	0.000	11 644.600	11 644.602
3649	Ispat Sidbec Inc.	Aciérie	Contrecoeur	QC	7.840	0.000	1.480	1 228.540	1 237.860
1651	Gerdau MRM Steel Inc.	MRM Steel	Selkirk	MB	5.624	0.000	1.120	926.851	933.595
3824	Co-Steel Lasco		Whitby	ON	8.065	0.000	0.079	817.349	825.493
3414	Hudson Bay Mining and Smelting Company Ltd.	HBM&S Co., Ltd. - Metallurgical Complex	Flin Flon	MB	244.556	0.000	3.043	0.000	247.599
1106	AltaSteel Ltd.	AltaSteel Ltd.	Edmonton	AB	4.044	0.000	0.017	232.138	236.199
4204	Sydney Steel Corporation	Sydney Steel Corp.	Sydney	NS	0.000	0.000	0.208	235.900	236.108
3802	Cominco Ltd.	Trail Operations	Trail	BC	147.400	0.000	40.100	0.000	187.500
5246	Gerdau MRM Steel Inc.	Mandak Metal Processors	Selkirk	MB	0.000	0.000	0.000	169.159	169.159
3655	Ispat Sidbec Inc.	Sidbec-Feruni (Ispat) Inc. Contrecoeur	Contrecoeur	QC	0.000	0.000	0.001	166.530	166.531